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September 3, 2004
WEC 2004-078

Lance Shaw
Compliance Project Manager
Docket Number 02-AFC-4C
California Energy Commission
1516 Ninth Street, (MS 2000)
Sacramento, CA 95814

**RE: AMENDMENT 2 - PETITION TO AMEND PROJECT BRIDGE WATER SUPPLY
(02-AFC-4C)**

Dear Mr. Shaw:

On behalf of the Walnut Energy Center Authority, please find attached one original and 12 copies of Amendment 2 for the Walnut Energy Center Project ("WEC"). The WEC project as licensed proposed using City potable water as its bridge water supply. The purpose of this amendment is to replace that water source with poor quality groundwater.

If you have any questions, please call Susan Strachan, WEC Compliance Manager, at (530) 757-7038.

Sincerely,

A handwritten signature in black ink, appearing to read "John L. Carrier".

John L. Carrier, J.D.
Program Manager

Attachment

WALNUT ENERGY CENTER (02-AFC-4C)

AMENDMENT NO. 2 (Alternative Water “Bridge” Supply)

Submitted by
Walnut Energy Center Authority

September 3, 2004

TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
1.1 OVERVIEW OF AMENDMENT.....	1
1.2 NECESSITY OF PROPOSED CHANGE.....	1
1.3 CONSISTENCY OF CHANGES WITH LICENSE.....	2
1.4 SUMMARY OF ENVIRONMENTAL IMPACTS	2
2.0 DESCRIPTION OF PROJECT AMENDMENT.....	3
2.1 PROPOSED PROJECT AMENDMENT.....	3
3.0 ENVIRONMENTAL ANALYSIS OF PROPOSED PROJECT AMENDMENT.....	6
3.1 AIR QUALITY	6
3.2 PUBLIC HEALTH.....	6
3.3 HAZARDOUS MATERIALS MANAGEMENT.....	6
3.4 WASTE MANAGEMENT	6
3.5 WORKER SAFETY AND FIRE PROTECTION	7
3.6 BIOLOGICAL RESOURCES	7
3.7 CULTURAL RESOURCES	7
3.8 GEOLOGY AND PALEONTOLOGY.....	8
3.9 SOILS AND WATER RESOURCES.....	8
3.10 LAND USE.....	9
3.11 TRAFFIC AND TRANSPORTATION	10
3.12 VISUAL RESOURCES	10
3.13 NOISE AND VIBRATION	10
3.14 SOCIOECONOMICS	10
3.15 CUMULATIVE IMPACTS	10
3.16 LORS	11
4.0 PROPOSED MODIFICATIONS TO THE CONDITIONS OF CERTIFICATION.....	12
5.0 POTENTIAL EFFECTS ON THE PUBLIC.....	15
6.0 LIST OF PROPERTY OWNERS	16
7.0 POTENTIAL EFFECTS ON PROPERTY OWNERS.....	17

FIGURES

- Figure 1 Groundwater Well Exclusion Area
Figure 2 Potential Well and Pipeline Corridor

TABLES

- Table A Dry Year Water Levels and Drawdown with Power Plant Well in Existing Private Irrigation Wells in Area
Table B Dry Year Water Levels and Drawdown with Power Plant Well in Existing Private Domestic Wells in Area

APPENDICES

- Appendix A Walnut Energy Center Power Plant Water Supply Impacts Analysis

1.0 INTRODUCTION

1.1 OVERVIEW OF AMENDMENT

The Walnut Energy Center Authority (the “Authority”) hereby petitions to amend the certification for the Walnut Energy Center (WEC) (02-AFC-4C) to include the use of an alternative water supply until recycled water from the City of Turlock is available (this “Amendment”). The WEC project as licensed allows for the use of a “bridge” water supply as an interim cooling and steam cycle make-up supply until recycled water is available. The bridge supply would also be used as a back-up to the recycled water supply in the event of a short-term disruption in service. As licensed, the bridge supply consists of potable water from the City of Turlock.¹ Rather than using this potable water supply, the Authority proposes in this Amendment to utilize poor quality groundwater for the bridge supply. This would be beneficial because the project would no longer use high quality potable water for this purpose.

The Authority would access the groundwater by drilling two groundwater wells on either the WEC project site (the “WEC project site”) or the Turlock Irrigation District’s (the “District”) South Washington Road equipment storage area, located immediately adjacent to its Walnut Peaker Plant and substation on South Washington Road (the “South Washington” site). Although the Authority’s seeking approval to locate the wells on either the WEC project site or the South Washington site, the Authority would ultimately only develop one set of the wells in only one of the locations. Moreover, the Authority would only operate one of the wells at any given time. That is, two wells would be constructed, one next to the other, to provide one operating well and a 100 percent redundant back-up well on either the WEC project site or the South Washington Road site.

The Amendment to the project bridge supply for cooling and steam cycle make-up requires a modification to Condition of Certification Soil & Water-5. This condition identifies the project’s sources of water, including the bridge supply. Modification of the condition is necessary in order for it to be consistent with the water sources to be used at the WEC. In addition, Condition of Certification Soils & Water-6 would also require conforming changes.

This Amendment to modify the project description contains all of the information that is required pursuant to Section 1769 (Post Certification Amendments and Changes) of the California Energy Commission’s Siting Regulations. The information necessary to fulfill the requirements of Section 1769 are contained in Sections 1.0 through 7.0.

1.2 NECESSITY OF PROPOSED CHANGE

Sections 1769 (a)(1)(B), and (C) of the CEC Siting Regulations require a discussion of the necessity for the proposed revision to the WEC project and whether the modification is based

¹ As licensed by the Commission, the WEC will use City potable water for fire protection and domestic purposes both during the bridge period and thereafter for these two, limited purposes. Accordingly, this Amendment does not affect the WEC project’s fire protection and domestic water supplies.

on information known by the petitioner during the certification proceeding. This Amendment is necessary in light of the District's negotiations with the City of Turlock regarding the bridge supply, which occurred after the certification proceeding. The Authority had originally estimated that the use of poor quality groundwater for cooling and steam cycle make-up would be cost prohibitive compared to using potable water from the City. However, based on the negotiations with the City regarding the cost of providing potable water for the bridge supply, it is now more cost effective for the Authority to use poor quality groundwater.

1.3 CONSISTENCY OF CHANGES WITH LICENSE

Section 1769(a)(1)(D) of the CEC Siting Regulations requires a discussion of the consistency of the proposed project revision with the LORS and whether the modifications are based upon new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision. If the project is no longer consistent with the license, an explanation why the modification should be permitted must be provided.

The use of poor quality groundwater in lieu of City potable water is consistent with the applicable laws, ordinances, regulations, and standards and the project license. Further, although the CEC determined that the WEC project's interim use of potable water would not result in any significant impacts, this Amendment is environmentally beneficial since the project would no longer use high quality potable water for its interim cooling and steam cycle make-up water needs or as a back-up to recycled water if it is temporarily unavailable.

The Amendment is not based upon new information that changes or undermines any bases for the final decision. The findings and conclusions contained in the Commission Decision for the WEC project are still applicable to the project as modified.

1.4 SUMMARY OF ENVIRONMENTAL IMPACTS

Section 1769 (a)(1)(E) of the CEC Siting Regulations requires that an analysis be conducted to address the potential impacts the proposed Amendment may have on the environment and proposed measures to mitigate any potentially significant adverse impacts. Section 1769 (1)(a)(F) requires a discussion of the impact of the proposed Amendment on the facility's ability to comply with applicable laws, ordinances, regulations, and standards (LORS). Section 3.0 of this Amendment includes a discussion of the potential environmental impacts associated with the Amendment as well as a discussion of the consistency of the modification with LORS. Section 3 concludes that there would be no significant environmental impacts associated with the Amendment and that the project as modified would comply with all applicable LORS.

2.0 DESCRIPTION OF PROJECT AMENDMENT

Consistent with the California Energy Commission Siting Regulations Section 1769 (a)(1)(A), this section includes a complete description of the proposed project Amendment as well as the necessity for the Amendment.

2.1 PROPOSED PROJECT AMENDMENT

As stated above, the Authority proposes to amend the WEC project by using an alternative bridge supply of water, until recycled water from the City of Turlock is available for use by the WEC. This bridge supply would also be used as a back-up to recycled water if it is temporally unavailable. The project as licensed uses potable water from the City of Turlock for its bridge supply. However, based upon negotiations with the City, the use of this water for the bridge supply is cost prohibitive. The Authority now proposes to use poor quality groundwater from the upper aquifer (above the Corcoran Clay), which is less expensive to obtain and allows the City's potable water to be preserved for other uses.

Three aquifers lie beneath the project site in descending order: the shallow aquifer, the upper aquifer, and the lower aquifer.

- € The shallow aquifer is the first encountered below ground level. The base of the shallow aquifer is the top of the shallow aquitard, which occurs at about 20 feet below the land surface. The groundwater table within the power plant area is about 8 feet below the land surface, and the shallow aquifer is about 12 feet in thickness.
- € An upper aquifer occurs within the Modesto and Riverbank formations in the depth interval from the base of the shallow aquitard to the top of the Corcoran Clay. This aquifer is about 135 feet in thickness within the power plant area.
- € A lower aquifer occurs within the Turlock Lake Formation in the depth interval from the base of the Corcoran Clay to the base of the Mehrten Formation. This aquifer is about 1,200 feet in thickness within the power plant area.

The water would be obtained through the development of two groundwater wells on either the WEC project site or the South Washington site. Two wells would be constructed next to one another to provide one operating well and a 100 percent redundant back-up well. Only one well would operate at any one time. The wells would be completed using the same construction methods for both. Each well would draw groundwater from the upper aquifer. It would be drilled to a depth that allows the bottom of the well to be seated in the Corcoran Clay deposit, which separates the upper and lower aquifers. This would be a depth of approximately 160 feet. The wells would be sealed with a sanitary seal from ground surface to a depth of 50 feet and the well casing would be perforated below the sanitary seal to the bottom of the well. In the event the wells are located at the WEC project site, the well pumps would be electrically driven with power supplied from a WEC motor control center. The power supply cables would be located underground in buried conduits. In the event the wells are located at the South Washington site, the well pumps would be electrically driven with

power supplied either from an existing motor control center at the Walnut Peaker Plant or from a new outdoor motor control center located at the wells and fed overhead power from the 12 kV distribution line which parallels South Washington Road.

Pipelines would be installed to transport water to the non-potable cooling tower makeup line located at the east side of the project site. As shown on Figure 1 (all figures are located at the end of the document) the wells on the WEC project site would be located anywhere within the 18-acre site, except within 150 feet of the leach field. This area around the leach field is shown in the figure as an exclusion area to comply with Department of Health Services and Stanislaus County requirements for horizontal separation from the leach field. If the Authority chooses to develop the wells at the South Washington location (see Figure 2), an 8-to 14-inch water pipeline within already developed roads and rights-of-way would transport the water from the South Washington wells to the WEC project site. From the South Washington wells, the pipeline route would extend east paralleling the UPRR railroad tracks, located on the south side of the District's South Washington Road equipment Storage Area. At South Washington Road, the horizontal directional drill construction method would be used to cross under both the railroad tracks and South Washington Road. Once the pipeline is on the east side of South Washington Road, it would turn south, paralleling the road until it reaches the access road to the WEC project site. The pipeline route would turn east, running parallel to or within the access road until it reaches the WEC project site.

From an environmental perspective, the proposed Amendment is beneficial. Specifically, the use of poor quality groundwater from the upper aquifer for the bridge supply would allow the Authority to avoid completely the use of City potable water as a make-up water supply, as currently authorized by the Commission's final decision.

The Amendment also has the ancillary benefit of creating a well system that would work in coordination with the District's existing agricultural dewatering wells. The District currently operates 6 drainage wells within one-half mile of the project for the purpose of removing agricultural irrigation water from the root zone of crops. The use of the proposed well system for the bridge supply would work in concert with the existing agricultural dewatering system. Specifically, the operation of the WEC groundwater wells would assist in the dewatering of the irrigation water from the root zone of the crops.

In addition to allowing the project to avoid the use of potable water for cooling and steam cycle make-up, the information presented in Section 3.9 of this Amendment confirms that the proposed well system for the bridge supply would not adversely affect or interfere with existing wells in the vicinity of the project. To confirm the lack of interference, the Authority conducted detailed modeling to calculate the drawdown in the shallow aquifer and upper aquifer. The modeling confirms that the proposed bridge supply wells would have no adverse effects on any other water users' wells.

The Authority also analyzed the drawdown from the WEC project or South Washington well compared to the minimum water level observed in the area of the project during the period from 1977-2001. Specifically, the Authority used the 1991 drought water levels as a projected worst-case scenario for water levels in the vicinity of the project. The Authority

then modeled the potential drawdown of the aquifer from the pumping associated with the bridge supply and analyzed the effect such drawdown might have on the surrounding wells, again assuming 1991 drought level conditions.

The results of the modeling shows that even with these conservative assumptions, the Authority's proposed bridge supply well system would not significantly adversely affect any other water users. Specifically, the worst-case drawdown at any one well assuming a 5-year operation of the bridge supply well system was 9 feet. Even assuming (1) 1991 drought water levels; and (2) worst case drawdowns, the projected 5-year pumping of the Authority's bridge supply well system would not result in any significant impacts on surrounding wells.

3.0 ENVIRONMENTAL ANALYSIS OF PROPOSED PROJECT AMENDMENT

The proposed project changes set forth in this Amendment provide the WEC with a bridge supply of non-potable water until recycled water is available. In addition, this bridge supply from the wells to be installed on the WEC project site or the South Washington site would also be available as a back-up water supply in the event recycled water is temporarily unavailable. An analysis of each of the environmental areas is presented below for the proposed project description modification.

3.1 AIR QUALITY

Condition AQ-80 limits the project drift rate to 0.0005 percent. This drift rate would be maintained during the interim use of poor quality groundwater. As a result, any potential air quality impacts associated with this Amendment would be less than significant.

3.2 PUBLIC HEALTH

Because the groundwater does not contain biological contaminants, the proposed modification would not result in potential impacts greater than those analyzed by the Commission during licensing. As a result, any potential public health impacts associated with this Amendment would be less than significant.

3.3 HAZARDOUS MATERIALS MANAGEMENT

The chemical inventory for the WEC project (Attachment A in the Hazardous Materials section of the Commission Decision) was modified when the Authority selected the High Efficiency Reverse Osmosis (HERO) zero-liquid discharge system. This Amendment would not result in any further modifications to the WEC chemical inventory and would not result in any potential impacts any greater than those analyzed by the Commission during licensing. As a result, any potential impacts associated with this Amendment would be less than significant.

3.4 WASTE MANAGEMENT

The WEC project would use a High Efficiency Reverse Osmosis (HERO) zero-liquid discharge (ZLD) system. The ZLD system would not be adversely affected by the higher TDS level of the poor quality groundwater compared to City-supplied potable water or recycled water. Moreover, supplemental groundwater sampling conducted by the Authority determined that silica levels of the poor quality groundwater are likely lower, or equal to, the silica levels in City-supplied potable or recycled water. The results of the supplemental water quality sampling are presented in Table 2 of Appendix A of this Amendment. Those results confirm that the higher TDS values previously provided are conservative.

Based upon this conservative assessment of water quality, the use of the poor quality groundwater would affect operation of the ZLD system in two ways. First, the frequency of regeneration of the softeners in the HERO system would increase by approximately 40

percent compared to regeneration rates using City-supplied potable water. Second, the solids produced by the ZLD system would similarly increase. It is projected that solids production from the ZLD system operating on poor quality groundwater could also increase by approximately 40 percent compared to production rates using City-supplied potable water. Although, the production of salt cake using the lower quality groundwater will increase compared to use of potable water, the production of salt cake will be similar to amounts produced using recycled water. The Commission's Final Decision for the WEC project requires the use recycled water when it is available and found that the potential salt cake production associated with recycled water is less than significant. Thus, because the potential salt cake production associated with the use of poor quality groundwater is similar to the production associated with recycled water, the potential waste management impacts associated with this Amendment are not significant.

3.5 WORKER SAFETY AND FIRE PROTECTION

Since all workers will undergo proper training, and since the water supply for fire protection would remain unchanged, the proposed modification would not result in potential impacts greater than those analyzed by the Commission during licensing. As a result, any potential Worker Safety and Fire Protection impacts associated with this Amendment would be less than significant.

3.6 BIOLOGICAL RESOURCES

The bridge supply wells the Authority would develop would be located on either the WEC project site or the South Washington site. Disturbance of the project site was addressed in the FSA, thus development of the wells would not result in any additional disturbance to biological resources on the site.

The South Washington site is void of vegetation and portions are graveled. The area was previously surveyed as part of the biological surveys conducted for the WEC project. No biological resources were found within the area. The area along the pipeline route was also previously surveyed and no significant biological resources were identified. As a result, the proposed modification would not result in any potential impacts any greater than those analyzed by the Commission during licensing. Any potential Biological Resources impacts associated with this Amendment would be less than significant.

3.7 CULTURAL RESOURCES

The two wells the Authority would develop would be located on the WEC project site or the South Washington Road site. Based on the history of the area and conclusions reached by the WEC Cultural Resource Specialist resulting from cultural resource monitoring conducted on the WEC project site, development of the wells would not likely result in disturbance to cultural resources on the WEC project site, the South Washington Road site, or along the pipeline corridor. As a result, the proposed modification would not result in potential impacts greater than those analyzed by the Commission during licensing. Any potential Cultural Resources impacts associated with this Amendment would be less than significant.

3.8 GEOLOGY AND PALEONTOLOGY

The proposed modification would not result in potential impacts to Geology greater than those analyzed by the Commission during licensing. The proposed modification has the potential to impact paleontological resources due to the earthmoving activities associated with the development of the wells and construction of the pipeline from South Washington site to the WEC project site. However, with the implementation of the mitigation measures contained in the Commission Decision for the WEC project, such as paleontological resource monitoring and worker environmental awareness training, potential impacts would be reduced to a level of insignificance.

3.9 SOILS AND WATER RESOURCES

The use of poor quality groundwater from the upper aquifer (above the Corcoran Clay) in-lieu of City potable water would not result in any significant impacts to the water resources in the region. Specifically, it would not adversely affect any other wells users in the area. In addition, there are benefits to the Authority utilizing the poor quality groundwater. First and most importantly, the Authority would be replacing the use of potable water with a poor quality source of water that does not meet drinking water standards (California Code of Regulations, Title 22) for dissolved solids and nitrate.

In addition, the District currently operates 6 drainage wells within one-half mile of the WEC project site for the purpose of removing agricultural irrigation water from the root zone of crops. These wells are located in the upper aquifer. The use of the proposed well system for the bridge supply would work in concert with the existing agricultural dewatering system. Specifically, the operation of the WEC groundwater wells would assist in the dewatering of the irrigation water from the root zone of the crops.

To determine that the District's use of the poor quality groundwater would not impact other users, groundwater modeling simulations were conducted to analyze the extent to which pumping new wells would affect water levels in the aquifer and surrounding wells. The modeling report is included in Appendix A. As part of this evaluation, the location and construction details of all known wells within a 4- mile radius of the new production wells were identified and located within the conceptual model.

A worst-case simulation was performed that determined the maximum potential impact from the pumping of water to serve the WEC. This worst-case scenario assumed that a single well would supply all of the WEC process water requirements at maximum demand for a continuous period of 5 years. Both well locations (the WEC project site and South Washington Road location) were evaluated. The resulting drawdown of the aquifer then reflects the water level reductions associated with maximum instantaneous pumping from each well location and the accumulated drawdown resulting from withdrawals of water from storage by other well users in excess of localized recharge rates. Figures 12 and 14 in Appendix A show the geographic extent of the drawdown in the upper aquifer that would result from this worst case pumping scenario. The dots on the figure represent the location of existing production wells.

As shown in Figures 12 and 14 in Appendix A, the drawdown from a single well after 5 years continuous pumping would be on the order of 10 feet immediately adjacent to the well. With a well at the WEC project site the drawdown would be less than 6 feet at the nearest production well. At the South Washington Site, the drawdown would be less than 9 feet. Most production wells within the 4-mile radius would experience a localized lowering of the water table of less than 2 feet from the WEC production wells.

In terms of potential effect under existing hydrological conditions, the reduction in water levels in neighboring wells is insignificant, only a few feet in an area with already high groundwater levels.

In terms of potential effect under extreme hydrological conditions, the reduction in water levels is still insignificant. Specifically, as set forth Tables A and B (tables are located at the end of the document), the drawdown from either the WEC project site or the South Washington location is insignificant even compared to water levels during the most extreme drought conditions over the past 27 years, the minimum water level observed in the wells during the period 1977 through 2001.

Minimum water levels were experienced in October 1991 during a drought event. Tables A and B show: (1) each production well for which data is available; and (2) the minimum water level in the wells from 1991 compared to: (a) the well depth, (b) the screened interval of the well, and (c) the incremental drawdown of these production wells that could be caused by WEC project well operating at 1,800 acre-feet per year (AF/year) over a 5-year period.

Tables A and B demonstrate that even considering the effects of extended drought, the modest lowering of water levels potentially resulting from the continuous operation at either the WEC project site or the South Washington site would not cause a significant reduction in the available water column in any well (less than 9 feet at the nearest production well). Given the well depths and the screened intervals of the wells, the relatively minor drawdown potentially resulting from the operation of the bridge supply wells would not adversely impact the utility of any well. Moreover, a closer examination of the water level variations from 1977 to 2001 shown in Appendix A, Figures 7 through 9, demonstrates that the potential reductions in water levels caused by a new WEC well (less than 9 feet at any well location) are safely within the much larger natural fluctuations in water levels occurring in this drought period.

3.10 LAND USE

The installation of wells at either the WEC project site or the South Washington site would be consistent with existing and planned land uses in this area. Surrounding uses are predominately industrial and agricultural, which include wells as ancillary to permitted uses. The proposed modification would not result in potential impacts greater than those analyzed by the Commission during licensing. As a result, any potential Land Use impacts associated with this Amendment would be less than significant.

3.11 TRAFFIC AND TRANSPORTATION

Since the construction workforce required to install the wells and pipeline would be small and of short duration, the proposed modification would not result in a significant increase in the construction workforce; and therefore, potential impacts would not be greater than those analyzed by the Commission during licensing. As a result, any potential Traffic and Transportation impacts associated with this Amendment would be less than significant.

3.12 VISUAL RESOURCES

The two groundwater wells would be located on the project site or the South Washington Road site. It is also important to note that groundwater wells are a common and expected sight in the project area dominated by surrounding industrial and agricultural uses. The wells would be relatively small (less than 10 feet in diameter) and short (less than 8 feet in height.)

At the WEC project site, the wells would not affect the view of the plant site from sensitive receptors in the project area. As relatively small structures, the wells will likely be either hidden in the background behind larger project features or if in the foreground, blend into the visual landscape with other existing industrial setting. Similarly, the South Washington Road site is surrounded by chain link fence with slats. This would prevent the wells from being seen. However, if in the future the District were to remove the slats, the two wells would not result in a visual impact since they would be located adjacent to large industrial equipment, specifically the Walnut Peaker Plant to the north and a District substation to the west.

In either location, the proposed modification would not result in any potential impacts any greater than those analyzed by the Commission during licensing. Any potential Visual Resources impacts associated with this Amendment would be less than significant.

3.13 NOISE AND VIBRATION

Given that the wells would be electrically driven, the proposed modification would not result in any potential impacts to Noise any greater than those analyzed by the Commission during licensing. Any potential Noise and Vibration impacts associated with this Amendment would be less than significant.

3.14 SOCIOECONOMICS

Construction of the wells could result in a slight increase in local purchases of materials and a slight increase in local construction labor. This increase could provide some economic benefits to the community. Therefore, the proposed modification could not result in potential impacts to Socioeconomics any greater than those analyzed by the Commission during licensing. As a result, any potential Socioeconomic impacts associated with this Amendment would be beneficial, but less than significant.

3.15 CUMULATIVE IMPACTS

The proposed modification would not result in potential cumulative impacts greater than those analyzed by the Commission during the licensing. As shown in Appendix A, the Authority's use of poor quality groundwater would not adversely affect other water users. In

fact, the WEC project's use of poor quality groundwater for its bridge supply would be beneficial from a cumulative impacts perspective because: 1) it would reduce consumption of potable water; and 2) the WEC groundwater pumping would benefit the District's current dewatering program.

The District operates 6 dewatering wells within a half-mile of the WEC, which pump water from the upper aquifer, with the objective of lowering water levels in the surface water aquifer. Agricultural drainage accumulates in the surface water aquifer, adversely impacting the crop root zones. The use of the proposed well system for the bridge supply would work in concert with the District's existing agricultural dewatering system, assisting in the removal of the irrigation water from the surface aquifer.

3.16 LORS

The Commission Decision certifying the WEC project concluded that the project is in compliance with all applicable LORS. Because the modification to project's bridge water supply described in this proposed change to project description is also consistent with all applicable LORS, the modification would not alter the assumptions or conclusions made in the Commission Decision.

4.0 PROPOSED MODIFICATIONS TO THE CONDITIONS OF CERTIFICATION

Consistent with the requirements of CEC Siting Regulations Section 1769 (a)(1)(A), this section addresses proposed modifications to the project's Conditions of Certification. As a result of the WEC project's use of poor quality groundwater for its bridge supply, Condition of Certification SOIL & WATER-5 and SOIL & WATER-6 require modification.

Modification to Condition SOIL & Water-5 is necessary to reflect the use of poor quality groundwater for the WEC project bridge supply and as a back-up to recycled water in the event of a short-term disruption in service. It removes the use of potable water as the bridge supply and as a back-up water supply and removes the 51 afy limit for the use of potable water as a back-up water supply.

Condition SOIL & WATER-6 has also been modified to conform to this Amendment.

SOILS&WATER-5: The project's water use shall be limited as described below. For purposes of this condition, the bridge period is defined as that period of time between the commencement of commercial operation of the WEC and the earlier of December 31, 2006 or when recycled water from the City of Turlock's wastewater treatment plant (WWTP) is available to the WEC.

Water for construction purposes shall consist of groundwater provided from the existing TID well at the Walnut substation. ~~Water, for all purposes, used during the bridge period shall consist of potable water provided by the City of Turlock, and shall not exceed 2 million gallons per day or 1,803 afy.~~

During the bridge period, water used for cooling and steam cycle make-up shall consist of poor quality groundwater from the upper aquifer supplied from one of two groundwater wells located on either the WEC project site or the TID equipment storage area on South Washington Road (the "South Washington" site). Only one of the two groundwater wells may be operated at any time (with the other well serving as a 100 percent redundant backup). Groundwater production from the wells shall not exceed two million gallons per day or 1,800 afy.

After the bridge period, Wwater for operational and landscaping purposes used after the bridge period shall consist of recycled water from the City of Turlock WWTP and shall not exceed two million gallons per day or 1,800 afy. Water for domestic needs after the bridge period shall consist of potable water provided by the City of Turlock and shall not exceed 3 afy. Potable water Groundwater from the wells to be located either on the WEC project site or the South Washington site may also be used for back-up to the recycled water supply in the event of a short-term disruption in service and shall not exceed 51 afyexceed two million gallons per day and. Potable water may also be used in the event that recycled water is not available to the project subject to the provisions of **SOILS&WATER-6**. Alternative water use shall be calculated using a 5-year rolling average.

Both during and after the bridge period, potable water from the City of Turlock shall be used for domestic uses (not to exceed 3 afy) and fire protection.

Verification: The project owner shall notify the Commission no later than May 31, 2006, and in monthly compliance reports thereafter, as to the status of recycled water production by the City of Turlock's WWTP until the WEC is using tertiary treated, recycled water for its non-potable operational and landscaping requirements. This notice shall include information on the issues related to recycled water production, DHS approval for recycled water service and the expected availability of recycled water supplies to WEC. After recycled water service is provided to WEC, the project owner shall report water use to the Commission as required by **SOILS&WATER-7**. Annual average water use shall be calculated using a 5-year rolling average of actual water use starting with the first year of operation. In the event of an interruption or reduction in recycled water service that requires the use of ~~baek up potable water~~ groundwater from the wells to be located either on the WEC project site or the South Washington site, the project owner shall notify the CPM, in writing, within 24 hours.

SOILS&WATER-6: The project owner shall prepare an Alternative Water Supply Plan to address either: (1) Title 22 compliant recycled water not being available from the City of Turlock's WWTP by December 31, 2006; or (2) a force majeure event occurring after initiation of recycled water service. The Plan shall be submitted no later than June 30, 2006. The Alternative Water Supply Plan shall demonstrate that ~~high quality~~water use by WEC shall not exceed either (1) the historical average of 54 afy required to irrigate the 18-acre site if City potable water is used (item 3 in the verification below) or (2) two million gallons per day or 1,800 afy if groundwater from the upper aquifer or irrigation tailwater/return flows are used (items 1 and 2 in the verification below). The project developer shall obtain approval for the ~~a~~Alternate w~~s~~Water s~~p~~Plan prior to its implementation.

In the event that the City of Turlock's WWTP is not able to produce recycled water in accordance with Title 22 requirements by December 31, 2006 for use by WEC, the project owner shall inform the CPM no later than November 30, 2006. If the CPM determines that the WWTP is not able to produce the recycled water for delivery by December 31, 2006, the CPM shall allow implementation of the Alternative Water Supply Plan until such time as the recycled water is available.

If, after the initiation of recycled water service, a force majeure event results in the recycled water supply being temporarily interrupted, the project owner shall notify the CPM within 24 hours. As soon as reasonably possible, the project owner shall meet and confer with the CPM and City of Turlock to determine the estimated duration of the outage and how to restore the recycled water supply as soon as practicable. If the CPM determines that the force majeure event may result in recycled water being unavailable for more than 30 days, then the CPM shall allow the project owner's implementation of the Alternative Water Supply Plan for the duration of the force majeure event.

Verification: The project owner shall prepare the “Alternative Water Supply Plan” to address either (1) recycled water not available by December 31, 2006 or (2) a force majeure event. The Plan shall be submitted no later than June 30, 2006.

This plan shall demonstrate no net increase in ~~high quality~~ water use above (1) the historical average of 54 afy if ~~City potable water is used (item 3 below) or (2) two million gallons per day or 1,800 afy if groundwater from the upper aquifer or irrigation tailwater/return flows are used (items 1 and 2 below)~~. This plan may achieve no net increase in ~~high quality~~ water use by methods including, but not limited to:

1. Use of shallow, degraded groundwater from the unconfined upper aquifer in the vicinity of the project site from either the WEC project site or the South Washington site.
2. Use of irrigation tailwater or return flows.
3. ~~Continued u~~Use of potable water supplied by the City of Turlock in conjunction with conservation measures that achieve an offset of water use in excess of 54 afy on an average annual basis.

This plan shall specifically address how the project owner will demonstrate no net increase in water use and any assumptions, calculations, needed agreements, and infrastructure to implement identified measures.

In the event that recycled water is not expected by the City of Turlock to be available until after December 31, 2006, the project owner shall notify the CPM in writing no later than November 30, 2006. The notification shall include the revised schedule for recycled water availability, an explanation of the causes for the delay in recycled water service, and any relevant correspondence between the project developer and the City of Turlock regarding recycled water service.

If after the initiation of recycled water service a force majeure event results in the recycled water supply being temporarily interrupted, the project owner shall notify the CPM within 24 hours by telephone or e-mail. This notification shall describe the event that has resulted in the interruption of recycled water supply, expected duration, and actions required to restore recycled water service.

5.0 POTENTIAL EFFECTS ON THE PUBLIC

Consistent with the CEC Siting Regulations Section 1769(a)(1)(G), this section discusses the proposed project modifications effects on the public. The proposed modification to the project's bridge water supply would have no potentially significant impacts on the public and will even have a slightly beneficial effect on the public since the project would not use potable water for process make-up water and cooling and would provide a few more temporary construction jobs.

6.0 LIST OF PROPERTY OWNERS

Consistent with the CEC Siting Regulations Section 1769(a)(1)(H), this section lists the property owners affected by the proposed modifications. As described in this Amendment, in general, and Section 3.9, Water Resources, and Appendix A, in particular, the WEC project's use of poor quality groundwater from either the WEC project site or the South Washington site as its bridge supply would not adversely affect neighboring groundwater wells.

Therefore, no well owners would be affected by the Amendment. Construction of the water line, should the South Washington Site be selected, would cross the Union Pacific Railroad spur. The railroad can be notified at the following address:

Union Pacific Corporation Railroad.
1700 Farnham St. 10th FL S PR
Omaha, NE 68102

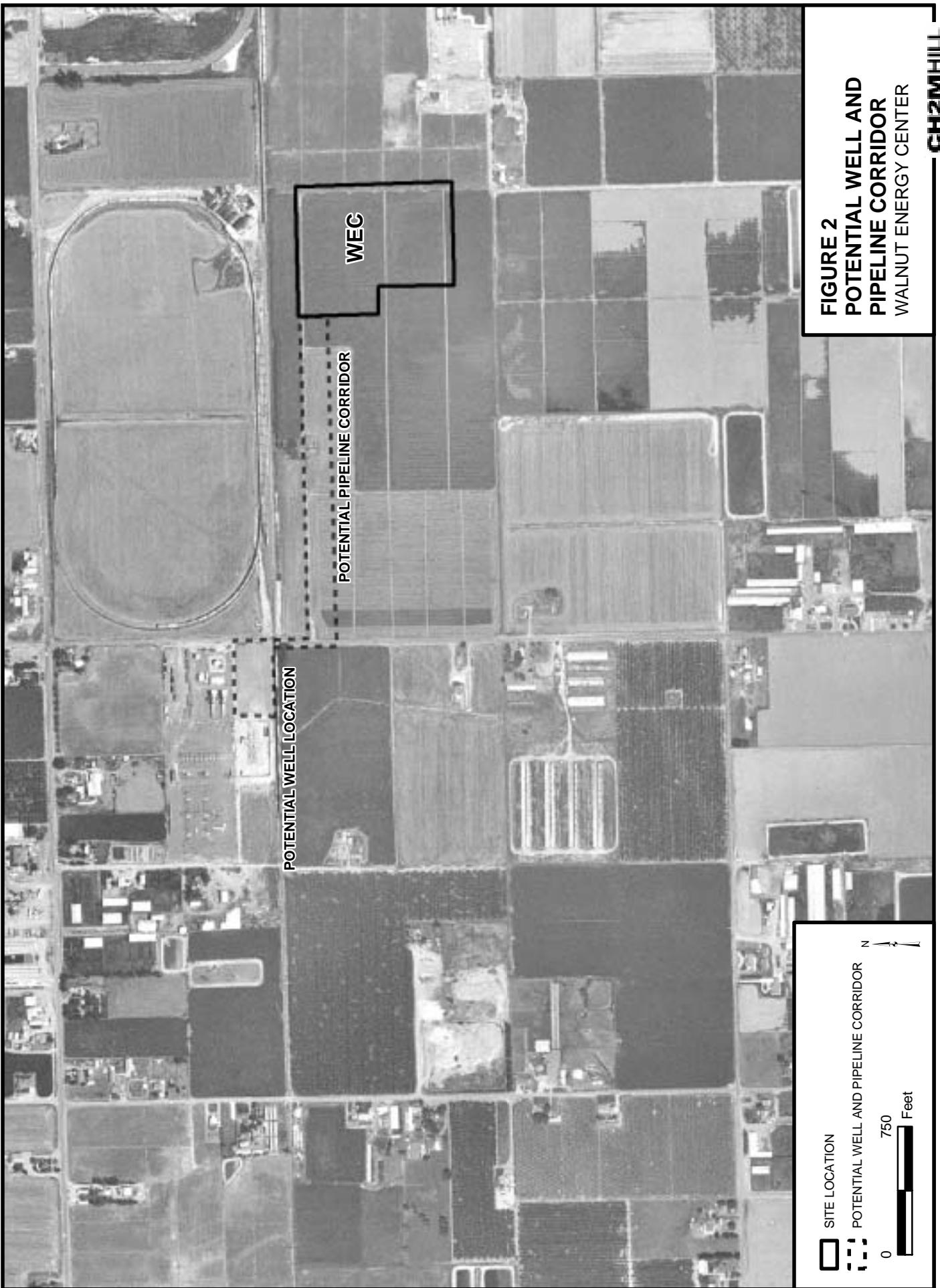
7.0 POTENTIAL EFFECTS ON PROPERTY OWNERS

Consistent with the CEC Siting Regulation Section 1769 (a)(1)(I), this section addresses potential effects of the proposed Amendment on nearby property owners, the public, and parties in the application proceeding.

As described in Section 3.9 Water Resources and Appendix A, the WEC project's use of poor quality groundwater as its bridge supply would not adversely affect neighboring groundwater wells. Therefore, no property owners, the public, and parties in the application proceeding would be affected by the Amendment, with the exception of crossing the Union Pacific railroad tracks, if the wells are located at the South Washington Road site.



FIGURE 1
GROUNDWATER WELL EXCLUSION AREA
WALNUT ENERGY CENTER **CH2MHILL**



CH2MHILL -

TABLE A.
Dry Year Water Levels and Drawdown with Power Plant Well in Existing Private Irrigation Wells in Area (Feet)

Well Address	DWR File Number	Completed Depth	Depth to Lowest Screen	Depth to Top of Highest Screen	Completion Date	Depth to Groundwater in Upper Aquifer in October, 1991	Drawdown in Upper Aquifer with South Washington Well	Drawdown in Upper Aquifer with Power Plant Well
1685 El Capitan Wy	33805	250	235	135	5/27/1977	23	0.80	0.81
813 S Moffett Rd	325323	230	225	135	11/22/1989	29	0.84	0.73
547 Pedros Rd	24809	240	240	90	5/25/1977	24	0.84	0.77
8505 Central Ave	71101	nd	52	nd	3/21/1972	30	1.07	0.90
Bradbury Rd	26158	217	217	30	7/3/1977	19	0.73	0.78
6006 S Central Ave	47939	330	330	90	8/16/1977	15	0.76	0.85
1431 N Central Ave	250438	365	365	100	4/23/1988	30	1.12	0.95
118 N Blaker Rd	290610	160	160	120	9/28/1988	35	1.85	1.64
731 S Central Ave	325356	125	125	115	2/16/1990	34	1.20	1.10
3431 S Moffett Rd	374491	200	200	120	4/5/1991	20	1.09	1.10
5213 W Main St	21314	nd	158	132	12/22/1976	20	1.16	1.16
2866 Robert Rd	54410	273	270	140	10/18/1979	30	1.12	0.92
5202 S Faith Home Rd	495263	65	65	nd	1/19/1994	15	0.95	1.05
4413 Prairie Flower Rd	47999	360	360	90	7/26/1977	15	1.18	1.27
880 S Kirby Rd	433988	nd	290	nd	4/28/1992	17	2.62	2.68
313 N Prairie Flower Rd	26589	157	157	97	7/1/1977	35	2.32	1.87
3107 S Prairie Flower Rd	252984	270	270	150	5/11/1988	16	1.67	1.74
3107 S Prairie Flower Rd	24670	270	270	50	5/5/1977	17	1.67	1.71
3107 S Prairie Flower Rd	24674	280	280	nd	5/14/1977	16	1.46	1.51
Ceres	21328	nd	100	80	1/17/1977	28	1.51	1.21
936 W Monte Vista Ave	24605	360	360	90	6/16/1977	27	1.34	1.10
6631 S Central Ave	76870	410	410	128	5/13/1981	25	1.52	1.21
Hilmar	22988	150	nd	nd	5/1/1977	30	0.93	0.73
1105 S Faith Home Rd	66746	nd	nd	nd	5/6/1971	19	3.24	3.05
5672 Almaden Express	125355	165	165	45	1/14/1975	34	2.99	2.37
9243 Merced Ave	46498	244	244	184	1/4/1977	15	0.00	0.73
7613 W Main St	87162	155	155	35	3/28/1974	15	0.99	1.13
1419 N Commons Rd	433901	395	395	nd	10/31/1991	29	3.35	2.59
2801 S Prairie Flower Rd	252997	380	380	220	5/24/1988	15	1.46	1.57
8413 Faith Home Rd	569169	143	143	nd	8/5/1994	33	2.40	1.89
4112 N Walnut Ave	24663	332	332	140	4/16/1977	28	2.28	1.82
8413 Faith Home Rd	33834	373	360	135	7/22/1977	25	1.85	1.52
1852 River Rd	75762	78	nd	nd	6/25/1971	25	1.84	1.52
6955 Faith Home Rd	433977	140	140	nd	4/13/1992	27	1.15	0.96
5700 Zeering Rd	569318	348	348	nd	4/18/1994	25	1.53	1.24
5213 W Main St	10124	300	300	108	//0	20	7.39	4.59
4800 Fulkerth Rd	22995	294	294	180	7/11/1977	23	3.40	2.70
PO Box 1803	226552	162	162	112	10/13/1981	22	4.04	3.12
4207 W Simmons Rd	46290	492	492	80	2/7/1978	11	2.53	3.19
9579 Hultberg Rd	22925	138	138	24	4/1/1977	15	0.00	0.75
5831 S Tegner Rd	27004	300	300	90	9/22/1977	15	0.00	0.81
5612 Hultberg Rd	35535	200	nd	nd	7/18/1977	15	0.82	1.00
9579 N Hultberg Rd	168987	320	320	230	4/2/1988	16	1.10	1.29
	35522	205	nd	nd	5/25/1977	20	3.21	2.73
5612 Hultberg Rd	22932	133	133	24	4/20/1977	16	1.40	1.72
5601 E Keyes Rd	24299	120	120	nd	7/29/1969	10	2.91	3.83
1320 N Quincy Rd	168945	220	220	160	3/7/1988	11	3.33	4.41
700 Sloat	90887	136	132	nd	4/16/1975	24	1.83	1.58
4907 S Hwy 99	98326	160	160	112	8/1/1974	25	1.42	1.24
5000 Esmar Rd	27005	270	270	180	8/16/1977	25	1.22	1.06
4218 N Washington Rd	33802	395	390	90	5/16/1977	25	1.54	1.25

TABLE A.
Dry Year Water Levels and Drawdown with Power Plant Well in Existing Private Irrigation Wells in Area (Feet)

Well Address	DWR File Number	Completed Depth	Depth to Bottom of Lowest Screen	Depth to Top of Highest Screen	Completion Date	Depth to Groundwater in Upper Aquifer in October, 1991	Drawdown in Upper Aquifer with South Washington Well	Drawdown in Upper Aquifer with Power Plant Well
4212 S Tegner Rd	22992	330	330	210	7/12/1977	17	1.28	1.60
Tegner Rd	22625	282	282	204	8/7/1977	13	1.95	2.46
3706 S Tegner Rd	22984	264	264	72	1/1/1977	16	1.55	1.89
3406 S Tegner Rd	495157	360	360	nd	6/11/1993	15	1.64	2.01
Turlock	495157	360	360	nd	6/11/1993	15	1.64	2.01
4313 Tegner Rd	147961	170	nd	nd	10/26/1979	17	1.23	1.53
2419 Tegner Rd	33816	399	389	160	6/15/1977	11	2.24	2.83
22338 Short Rd	46529	144	144	48	9/19/1977	18	0.83	1.03
21330 Johnson Ave	36315	170	nd	nd	6/23/1977	15	0.00	0.74
4112 N Walnut Ave	24665	340	340	140	4/23/1977	21	1.86	1.71
2219 W Monte Vista Ave	145652	390	390	120	12/19/1977	23	1.50	1.36
PO Box 1318	582777	125	nd	27	7/8/1994	24	1.37	1.23
3612 Mt View Ave	89357	152	152	38	8/16/1973	30	0.97	0.84
4118 N Kilroy Rd	24684	233	233	20	5/27/1977	25	1.30	1.18
10218 N Lander Ave	131009	320	292	176	1/20/1978	24	1.17	1.09
Simmons Rd	85429	211	211	37	5/11/1977	15	1.73	2.13
2136 S Walnut Ave	26166	264	264	50	8/25/1977	16	1.59	1.89
20694 Johnson Rd	36311	200	nd	nd	6/28/1977	18	0.00	0.75
9001 N Lander Ave	326962	240	235	80	12/1/1989	26	0.00	0.76
4018 Swanson Rd	437539	180	180	nd	7/20/1996	20	1.19	1.44
15760 N Ave	29212	236	234	162	12/5/1978	20	1.26	1.31
1119 Pedros Rd	146260	160	160	110	6/3/1975	20	1.27	1.28
11913 W East Ave	287352	460	460	250	5/5/1989	20	0.00	0.76
1129 9th St	66752	nd	nd	nd	2/3/1971	33	1.00	1.15
700 Crane Rd	66741	nd	nd	nd	5/4/1971	34	0.94	1.07
101 Wayside	46286	425	425	110	12/21/1977	20	1.10	1.14
421 E Olive Ave	90457	146	146	126	9/23/1974	20	0.86	0.87

nd indicates data not available from well driller's report

TABLE B.
Dry Year Water Levels and Drawdown with Power Plant Well in Existing Private Domestic Wells in Area (Feet)

Well Address	DWR File Number	Completed Depth	Depth to Bottom of Lowest Screen	Depth to Top of Highest Screen	Completion Date	Depth to Groundwater in Upper Aquifer in October, 1991	Drawdown in Upper Aquifer with South Washington Well	Drawdown in Upper Aquifer with Power Plant Well
118 N Blaker Rd	189638	125	125	105	12/10/1985	31	0.92	0.80
737 S Blaker Rd	98314	147	147	107	6/26/1979	30	0.93	0.82
3024 S Blaker Rd	250555	152	152	132	8/15/1988	25	0.74	0.71
10407 S Bradbury Rd	246990	150	150	90	5/20/1982	25	0.00	0.00
3312 S Blaker Rd	247491	175	175	155	8/4/1988	25	0.00	0.00
3307 S Blaker Rd	811823	165	165	nd	2/17/1999	25	0.00	0.00
1550 S B St	191167	106	106	86	5/28/1986	24	0.81	0.77
3418 S Blaker Rd	129532	84	84	64	8/31/1978	25	0.00	0.00
10007 Fulkerth Rd	128975	121	121	81	12/29/1978	30	0.94	0.78
10007 Fulkerth Rd	149365	75	75	65	5/18/1976	30	0.94	0.78
1912 E Taylor Rd	426340	160	160	nd	4/12/1993	30	0.00	0.00
7725 Central Ave	70222	110	110	100	4/21/1972	30	0.77	0.00
501 S Central Ave	51225	70	69	50	3/18/1970	34	1.16	1.05
507 S Central Ave	66754	nd	77	67	2/9/1971	34	1.16	1.05
6025 S Central Ave	498206	155	155	nd	5/14/1992	23	0.00	0.00
9730 W Bradbury Rd	148629	88	88	73	7/28/1976	23	0.00	0.00
5780 S Central Ave	495115	75	75	nd	2/15/1990	23	0.00	0.00
5525 S Central Ave	64867	70	nd	nd	4/15/1987	22	0.00	0.00
3030 S Central Ave	251141	160	160	120	6/6/1987	20	0.95	0.93
5443 S Central Ave	96258	178	178	158	7/21/1980	22	0.00	0.00
5221 S Central Ave	811790	100	100	nd	12/3/1998	22	0.00	0.00
5200 S Central Ave	145903	80	80	60	4/9/1976	22	0.00	0.00
8331 Central Ave	154233	165	165	125	10/16/1984	30	0.89	0.00
5824 S Central Ave	96695	158	158	94	4/21/1981	23	0.77	0.78
2325 E Taylor Rd	47909	255	255	215	5/2/1977	30	0.00	0.00
219 S Central Ave	47907	270	270	90	7/18/1977	35	1.18	1.07
219 S Central Ave	65090	140	140	120	8/20/1987	35	1.19	1.07
2225 Central Ave	21038	68	nd	nd	5/22/1969	20	1.06	1.02
219 Central Ave	516483	142	142	nd	2/16/1998	35	1.20	1.08
7936 S Central Ave	154241	120	120	100	11/2/1984	30	0.87	0.00
3513 S Central Ave	21047	84	nd	nd	11/25/1969	22	0.91	0.90
306 N Central Ave	29338	130	nd	nd	12/2/1969	35	1.20	1.07
4906 S Central Ave	495222	190	190	nd	10/15/1993	22	0.00	0.00
506 N Central Ave	252808	140	140	120	9/15/1987	35	1.19	1.06
5601 S Central Ave	381849	180	180	160	12/10/1992	22	0.00	0.00
3825 S Central Ave	76520	84	84	74	11/8/1972	23	0.84	0.85
2331 Roberts Rd	370330	295	295	275	7/3/1990	30	0.82	0.00
2466 E Taylor Rd	99498	74	74	64	12/2/1974	30	0.00	0.00
2506 E Taylor Rd	64880	112	112	92	4/23/1987	30	0.00	0.00
2406 Roberts Rd	151158	142	140	120	8/7/1975	30	0.87	0.00
2408 Roberts Rd	129788	140	140	106	5/24/1978	30	0.87	0.00
PO Box 949	191158	300	300	280	1/7/1986	35	1.39	1.19
8655 Moffett Rd	243235	94	94	74	10/18/1982	30	1.19	1.00
2654 E Taylor Rd	325386	170	170	150	4/23/1990	30	0.76	0.00
7236 Moffett Rd	168846	300	300	280	7/7/1987	30	0.76	0.00
813 S Moffett Rd	29166	137	137	124	10/20/1977	32	1.47	1.31
1424 S Moffett Rd	164923	130	130	110	8/8/1986	25	1.41	1.30
2719 S Moffett Rd	580320	160	160	nd	6/28/1995	20	1.20	1.18
3431 S Moffett Rd	326871	120	120	100	9/11/1989	20	1.07	1.08
3431 S Moffett Rd	326872	140	140	120	9/12/1989	20	1.07	1.08
4419 S Moffett Rd	98947	75	75	65	6/6/1974	19	0.88	0.92

APPENDIX A

WALNUT ENERGY CENTER POWER PLANT WATER SUPPLY IMPACTS ANALYSIS



Date: September 1, 2004
To: Randy Baysinger
From: Timothy Durbin
Subject: TID Walnut Energy Center Power Plant Water-Supply Impacts

Introduction

The Turlock Irrigation District (TID) is constructing a gas-fired power plant, called the Walnut Energy Center (“WEC”) power plant, near the southwestern boundary of Turlock (Figure 1). The power plant may require a temporary cooling-water supply of about 1,800 acre-ft/yr over the next five years. One alternative for providing that water supply is to pump groundwater, either at the power plant (the “WEC Site” well location) or at TID’s South Washington Road equipment storage area located about one-half mile northwest of the power plant immediately adjacent to TID’s Walnut Peaker Plant and substation on South Washington Road (the “South Washington” well location). This memorandum describes the groundwater level impacts of such groundwater pumping and the expected quality of the pumped water.

Hydrologic Setting

The WEC Site and South Washington well locations are within the Turlock groundwater basin (Figure 1). The basin is bordered by the Tuolumne River on the north, the Merced River on the south, the San Joaquin River on the west, and the Sierra Nevada foothills on the east (California Department of Water Resources, 2003). The groundwater basin comprises about 541 mi² within these boundaries. The power plant is located within the west-central part of the groundwater basin about 9 mi from the Tuolumne River, about 9 mi from the Merced River, and about 7 mi from the San Joaquin River.

Hydrogeology. The Turlock groundwater basin is part of the San Joaquin Valley groundwater basin, a northward trending geologic trough filled with marine and

continental sediments (Williamson, Prudic and Swain, 1985; and Page, 1986). The Turlock groundwater basin occurs within the uppermost interval of those sediments, which are comprised of westward-dipping alluvial-fan and other deposits. The active groundwater system is as much as 1,500 ft in thickness.

Deposits of post-Miocene age comprise the hydrogeologic units representing the active groundwater system (California Division of Mines and Geology, 1966; Hotchkiss, 1972; Marchand and Allwardt, 1981; Page, 1986; and Page and Balding, 1973). The base of the groundwater system is the base of the Mehrten Formation (Figures 2 and 3). Three units that represent separate alluvial-fan-building episodes overlie the Mehrten Formation. Those units are the Turlock Lake, Riverbank, and Modesto formations. Both the Modesto and Turlock Lake formations contain lake and flood-basin deposits. Where those fine-grained deposits occur in the Modesto Formation, they are referred to as the shallow aquitard. Where those deposits occur within the Turlock Lake Formation, they are referred to as the Corcoran Clay.

The Modesto, Riverbank, Turlock Lake, and Mehrten formations comprise the principal aquifers within the power-plant area. Three aquifers lie beneath the project site in descending order: the shallow aquifer, the upper aquifer, and the lower aquifer. The shallow aquifer is the first encountered below ground level. The base of the shallow aquifer is the top of the shallow aquitard, which occurs at about 20 ft below the land surface. The groundwater table within the power-plant area is about 8 ft below the land surface, and the shallow aquifer is about 12 ft in thickness.

An upper aquifer occurs within the Modesto and Riverbank formations in the depth interval from the base of the shallow aquitard to the top of the Corcoran Clay. This aquifer is about 135 ft in thickness within the power-plant area. A lower aquifer occurs within the Turlock Lake Formation in the depth interval from the base of the Corcoran Clay to the base of the Mehrten Formation. This aquifer is about 1200 ft in thickness within the power-plant area.

The Modesto, Riverbank, Turlock Lake, and Mehrten formations yield moderate to large quantities of water to wells. However, the hydraulic conductivity within the groundwater basin tends to decrease with depth. This is indicated by Table 1, a summary of hydraulic-conductivity values derived from specific-capacity and screened-interval data for wells within the Turlock groundwater basin. The log-average hydraulic

Randy Baysinger

September 1, 2004

Page 3

conductivity (geometric mean) is 407.8 ft/d for the Modesto Formation, 86.7 ft/d for the Riverbank Formation, 46.5 ft/d for the Turlock Lake Formation, and 22.7 ft/d for the Mehrten Formation. While hydraulic conductivity differs between formations, it tends not to have a geographic trend within a formation.

The groundwater table occurs within the Modesto Formation, which is composed mostly of sands and silts (Hotchkiss, 1972; Marchand and Allwardt, 1981; Page, 1986; and Page and Balding, 1973). The specific yield of the formation at the groundwater table is about 10 percent (California Department of Water Resources, 2003).

Depth to Ground Water. The groundwater levels within the shallow and upper aquifers are slightly below the land surface. Within the power-plant area, the groundwater levels within the shallow aquifer are about 8 ft below the land surface. The groundwater levels within the upper aquifer are therefore about 15 ft below the land surface when measured in a well column. Because the base of the shallow aquitard is about 20 feet below the land surface, the upper aquifer is confined under pressure beneath the shallow aquitard.

The geographic distribution of groundwater levels near Turlock are shown on Figures 4 through 9. Figures 4 through 6 show contours of depth to groundwater within the shallow aquifer. The contours are based on monthly water-level measurements within a network of shallow monitoring wells that are operated by TID. The wells are about 15 ft in depth. Figures 7 through 9 show contours of depth to groundwater within the upper aquifer. The contours are based on annual measurements made by the California Department of Water Resources in irrigation wells in that area. Measurements for November 1977, October 1991, and October 2001 are shown on Figures 4 through 9. The selected months represent months for which sets of concurrent measurements are available for both the shallow and upper aquifer. The selected years represent a collection of dry and wet years.

Groundwater quality. Groundwater-quality varies within the power-plant area. The available data on groundwater constituents are listed in Table 2, and the location of the sampling wells are shown on Figure 10. Table 2 indicates that dissolved solids range from 420 to 720 mg/L, and nitrate ranges from 64 to 149 mg/L. Groundwater within the power-plant area does not meet drinking-water standards (California Code of Regulations, Title 22) for dissolved solids and nitrate.

Well Construction. Privately owned domestic and irrigation wells are located near the power plant. Based upon driller's reports submitted to the California Department of Water Resources, about 600 domestic wells are located within about four miles of the power plant, and about 78 irrigation wells are located within that distance. The location, well depth, screened interval, and completion date for the domestic and irrigation wells are listed respectively in Tables 3 and 4. The locations for the domestic and irrigation wells are shown on Figure 11.

Most of the domestic and irrigation wells are completed only within the upper aquifer, but some wells are completed within the lower aquifer or within both the upper and lower aquifers. No wells are completed within the shallow aquifer. For the domestic wells, the average depth is 160 ft, and the range of depths is from 42 to 985 ft. The average depth to the top of the uppermost screen is 127 ft, and the range of depths is from 27 to 340 ft. For the irrigation wells, the average depth is 252 ft, and the range of depths is from 65 ft to 492 ft. The average depth to the top of the uppermost screen is 114 ft, and the range of depths is from 20 to 250 ft.

Calculation of Drawdown

A well to supply cooling-water to the power plant will be constructed very similarly to the TID drainage wells that are located within the power-plant area. The well depth will extend to the top of the Corcoran Clay. The well will be screened from 50 ft below the land surface to the bottom of the well. A 50-ft sanitary seal will be installed. The construction will be identical for each alternative well site.

The groundwater-level drawdown due to pumping for power-plant cooling is shown on Figures 11 through 14. Figures 11 and 12 show the effects of pumping from a well located within the center of the WEC site. Figures 13 and 14 show the effects of pumping from the South Washington location, which is located about one-half mile northwest of the power plant. Figures 11 and 13 show the groundwater-level drawdown in the shallow aquifer after pumping at 1,800 acre-ft/yr for five years. Figures 12 and 14 correspondingly show the groundwater-level drawdown in the upper aquifer.

The drawdown was calculated using the U. S. Geological Survey computer program *WTAQ* (Barlow and Moench, 1999). This program computes the drawdown

from a partially penetrating well within a water-table aquifer. Drawdowns are computed for a radially infinite groundwater system that is bounded at the top by the groundwater table and at the bottom by an impermeable base. Within this system, the program can compute the drawdown in an observation well located at a specified distance from the pumping well and screened over a specified interval below the groundwater table. The pumping well is pumped at a constant rate. The inputs to the program include the aquifer thickness, horizontal hydraulic conductivity, vertical hydraulic conductivity, specific storage, and specific yield. The inputs additionally include the screened interval of the pumping well, the screened interval of the observation well, and the distance from the pumping well to the observation well.

The program *WTAQ* was used to calculate drawdown in the upper and shallow aquifers. An effective vertical hydraulic conductivity was used to represent this multi-aquifer system within the program. The input values are listed in Table 5. The horizontal hydraulic conductivity was assumed to be 100 ft/d, which is based on the specific-capacity-derived hydraulic conductivity for the Modesto and Riverbank formations that is referenced in Table 1. However, the input values are reduced to account for the fact that production wells generally are screened in the most transmissive aquifer intervals. The vertical hydraulic conductivity was assumed to be 0.055 ft/d. This vertical hydraulic conductivity was derived from the observed groundwater-level differential between the shallow and upper aquifers (Figures 4 through 9). The specific storage was assumed to be 10^{-4} 1/ft, which is typical of Quaternary alluvial deposits (Morris and Johnson, 1967). The specific yield was assumed to be 10 percent, which is the value derived by the California Department of Water Resources (2003).

Using these inputs, the program *WTAQ* was used to compute the groundwater-level drawdown after pumping for a five-year period. The resulting geographic pattern of groundwater-level drawdown is similar for each cooling-water well site. For a particular distance from the well, the drawdown is identical for the two sites. Correspondingly, the drawdown shown on Figure 11 for the WEC site and the drawdown shown on Figure 13 for the South Washington well site are identical except that the drawdown pattern is shifted geographically. The same applies to the comparison of Figures 12 and 14.

The drawdowns shown on Figures 11 through 14 represent a constant pumping rate of 1,800 acre-ft/yr. The actual pumping will vary day-to-day depending on weather conditions, because the efficiency of the cooling system depends in part on the ambient

air temperature. Based on average climatic conditions, the monthly average pumping rates are

Month	Pumping Rate (Acre-Feet)
January	130
February	124
March	144
April	144
May	157
June	163
July	177
August	177
September	163
October	158
November	134
December	129
Total	1,800

K Helm, written communication, 2004

This pattern of monthly pumping induces annual fluctuations in groundwater levels. For the shallow aquifer, the fluctuations are less than about one foot above and below the drawdowns shown on Figures 11 and 13. For the upper aquifer, the fluctuations are slightly more than one foot above and below the drawdowns shown on Figures 12 and 14.

The computed drawdown is somewhat sensitive to the parameter values used in the computer program *WTAQ*. This is indicated in Table 6, which lists the results of using alternative aquifer-parameter values in the program. The computed drawdown is listed with the parameter values perturbated from the baseline parameter values listed in Table 5. Drawdowns within the upper aquifer are listed both for the parameter values equal to 50 percent of the baseline value and for the parameter values equal to 200 percent of the baseline value. The results indicate that, even when a large range of parameter values is considered, the drawdowns within the upper aquifer are insignificant with the alternative parameter values.

Modeling Results

Groundwater pumping to supply cooling-water will not significantly impact the groundwater. The drawdown due to the power-plant pumping will result in a depth to

groundwater within the shallow aquifer at one-quarter mile of 12.7 ft instead of the current 8 ft and will result in a depth to groundwater within the upper aquifer at one-quarter mile of 20 ft instead of the current 15 ft. The drawdown very near either cooling-water supply well location will be small in the immediate vicinity, not more than about 10 ft, and significantly, as shown through the modeling results, the drawdown decreases rapidly from the well site as the distance from the well site increases. Drawdowns of the magnitude demonstrated in the modeling results will not impair the utility of any domestic or irrigation well within the power-plant area.

Further, the actual groundwater impact of the power-plant pumping will be smaller than indicated above. The indicated drawdowns are the isolated effects of the power-plant pumping. However, the power-plant pumping will not be isolated but will be linked to the TID drainage pumping. TID pumps groundwater within the power-plant area and other areas to manage high groundwater levels that otherwise would damage crops. The purpose of the drainage pumping is to lower the groundwater table and prevent poorer quality water from reaching crop root zones. The drawdown due to the power-plant pumping will substitute for, not be in addition to, the current TID drainage pumping.

Properly designed wells are constructed to function with the expectation of hydrologic variability. The most important design considerations are the depth to the screened interval, the depth to the pump intakes, and the efficiency characteristics of the pump. Given the well-construction and pump-installation practices typically applied to wells within the Turlock area, the groundwater pumping for the power plant will not impair the use of existing domestic and irrigation wells.

While screens are installed within the most transmissive aquifer zones, the depth to the top of the uppermost screen is set such that the water level within the well casing is always higher than that depth. Well completion reports for domestic wells within the Turlock area indicate operating drawdowns from the land surface of about 54 ft within a typical well during extended pumping. Likewise, the well completion reports for irrigation wells indicate drawdowns of about 78 ft. The typical depth to the top of the uppermost screen is about 127 ft for domestic wells and 114 ft for irrigation wells. Correspondingly, the top of the uppermost screen typically is about 73 ft below the operating drawdown within domestic wells and 36 ft below the operating drawdown within irrigation wells.

Pump intakes are installed so as to maintain a required minimum submergence of the pump during the expected operating conditions. Adequate inlet submergence is required for the proper operation of pumps. Specific data are not available on the setting of pump inlets, but general practice is to install pumps not higher than immediately above the uppermost screen. Based on the available data regarding well screens, the pump intake typically is about 73 ft below the operating drawdown within domestic wells and 36 ft below the operating drawdown within irrigation wells.

Pumps are selected for a well to operate efficiently for a specified capacity and the anticipated operating drawdown. However, pumps generally are selected that operate efficiently over a range of operating drawdowns. The pumps typically installed in domestic wells can operate effectively over drawdowns that range more than 30 ft above or below the optimal conditions. Likewise, the pumps installed in irrigation wells can operate effectively over drawdowns that range more than 20 ft above or below the optimal conditions.

The drawdowns caused by the power-plant pumping will be considerably smaller than those that would impair the existing domestic and irrigation wells. The drawdown due to the cooling-water supply well will be less than 5 ft, except at distances of less than one-quarter mile from the cooling well. Correspondingly, the typical operating drawdown from the land surface for a domestic well located one-quarter mile from the power-plant well will be 59 ft. The typical operating drawdown from the land surface for an irrigation well located one-quarter mile from the power-plant well will be 83 ft. However, the well screens for domestic wells typically are more than 127 ft below the land surface, and the well screens for irrigation wells typically are more than 114 ft below the land surface. Therefore, well screens are not likely to be dewatered or seriously dewatered. Likewise, the pump intakes are not likely to be dewatered. Furthermore, the drawdowns due to the power-plant pumping are within the operating range for domestic and irrigation wells within the Turlock area.

For the upper aquifer, the drawdown from either the WEC Site location or the South Washington site is 5 ft at one-quarter mile from the pumping well, 1.9 ft at two miles, and less than 1 ft at four miles. For the shallow aquifer, the drawdown from either the WEC Site location or the South Washington site is 4.7 ft at one-quarter mile from the

pumping well, 1.9 ft at two miles, and less than 1 ft at four miles. (See Figures 11-14 and Table 6.)

The drawdown at each domestic and irrigation well is listed respectively in Tables 3 and 4. These tables include, among other things, the drawdown, expressed in feet, projected for both domestic and agricultural wells, assuming five years of continuous pumping of 1,800 acre feet annually from the upper aquifer.

For the WEC Site well location, the maximum drawdown within the upper aquifer at a domestic well is 5.72 ft. However, that well is 76 ft in depth, and the depth to the top of the uppermost screen is 60 ft. As for irrigation wells, the maximum drawdown with the power-plant well within the upper aquifer at an irrigation well is 4.59 ft. However, that well is 300 ft in depth, and the depth to the top of the uppermost screen is 108 ft. Accordingly, the modeling results show no significant impacts on surrounding wells associated with the WEC Site well location.

For the South Washington well location, the maximum drawdown within the upper aquifer at a domestic well is 8.87 ft. However, that well is 118 ft in depth, and the depth to the top of the uppermost screen is 98 ft. As for irrigation wells, the maximum drawdown with the South Washington well location within the upper aquifer at an irrigation well is 7.39 ft. However, that well is 300 ft in depth, and the depth to the top of the uppermost screen is 108 ft. Thus, the modeling results show no significant impacts on surrounding wells associated with the South Washington well location.

The overall conclusion of this report is that for all domestic and irrigation wells, the potential drawdowns at the wells associated with either the WEC Site well location or the South Washington location are insignificant given the well depth, the depth to the top of the uppermost screen and the relatively small drawdowns predicted.

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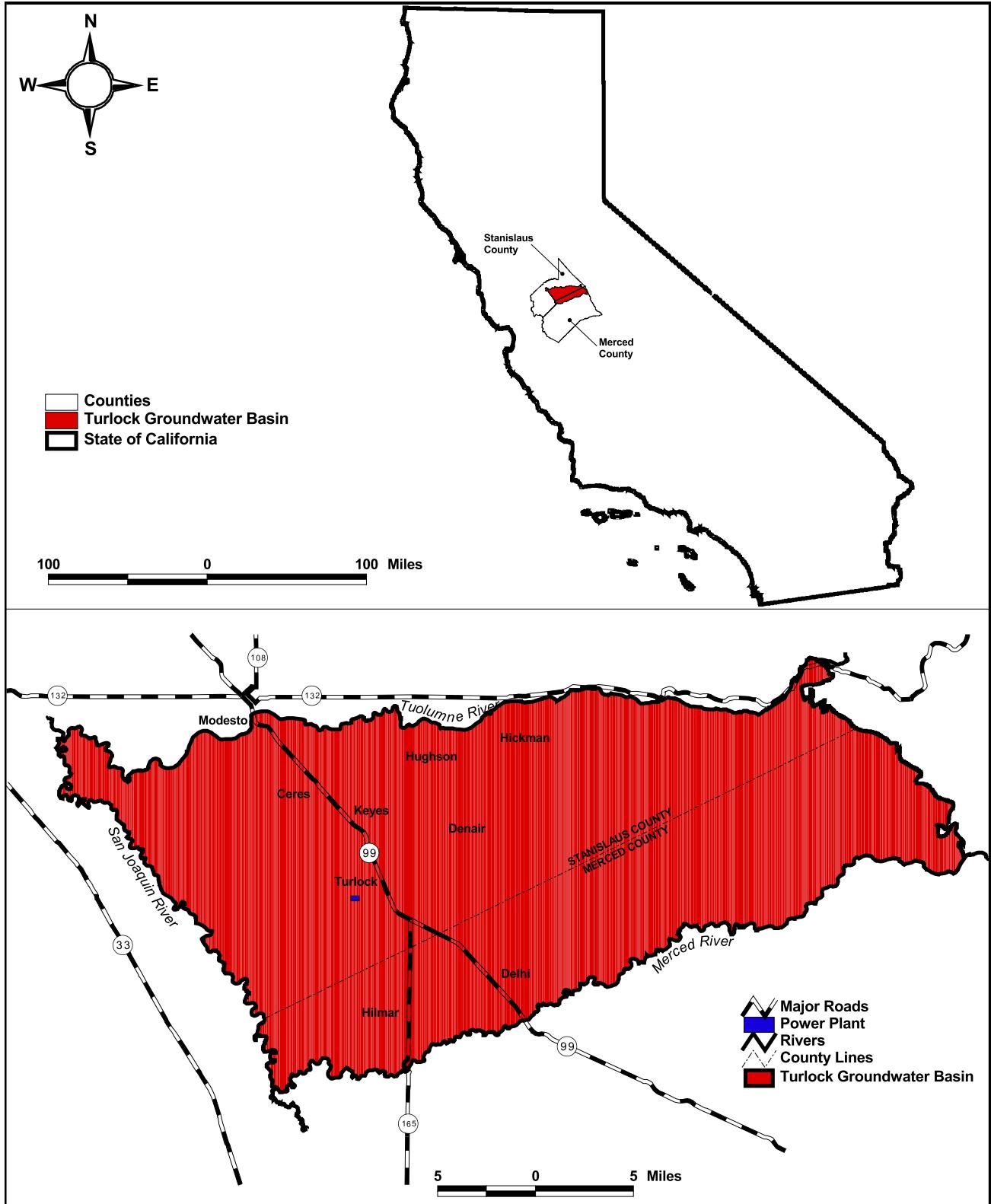
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List of Figures

- Figure 1 Map showing geographic location of power plant within the Turlock groundwater basin.
- Figure 2 Map showing hydrogeologic units within the Turlock groundwater basin.
- Figure 3 Diagram showing west-east cross-section showing hydrogeologic units within the groundwater basin.
- Figure 4 Map showing depth to groundwater in shallow aquifer for November 1977.
- Figure 5 Map showing depth to groundwater in shallow aquifer for October 1991.
- Figure 6 Map showing depth to groundwater in shallow aquifer for October 2001.
- Figure 7 Map showing depth to groundwater in upper aquifer for November 1977.
- Figure 8 Map showing depth to groundwater in upper aquifer for October 1991.
- Figure 9 Map showing depth to groundwater in upper aquifer for October 2001.
- Figure 10 Map showing location of water-quality sampling wells.
- Figure 11 Map showing drawdown in shallow aquifer after five years with WEC Site well.
- Figure 12 Map showing drawdown in upper aquifer after five years with WEC Site well.
- Figure 13 Map showing drawdown in shallow aquifer after five years with South Washington well.
- Figure 14 Map showing drawdown in upper aquifer after five years with South Washington well.

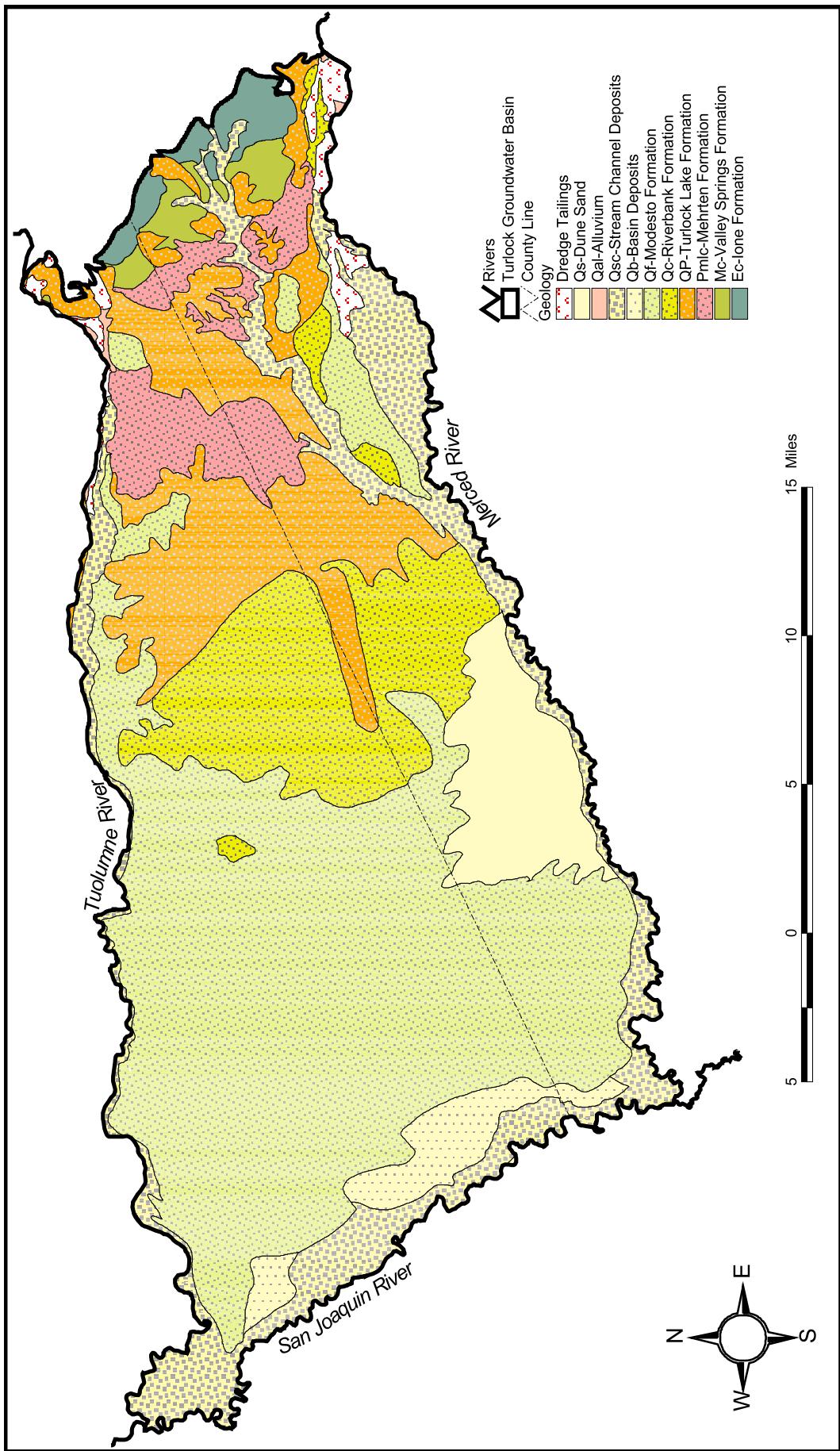
List of Tables

- Table 1. Average hydraulic conductivity within the Turlock groundwater basin.
- Table 2. Groundwater-quality within power-plant area.
- Table 3. Parameter values used in drawdown calculation.
- Table 4. Potential drawdown in existing private domestic wells in area.
- Table 5. Potential drawdown in existing private irrigation wells in area.
- Table 6. Sensitivity of drawdown to aquifer-parameter values.



**Figure 1 Geographic Location
of Power Plant within
Turlock Groundwater Basin**

Figure 2 Hydrogeologic Units within the Turlock Groundwater Basin



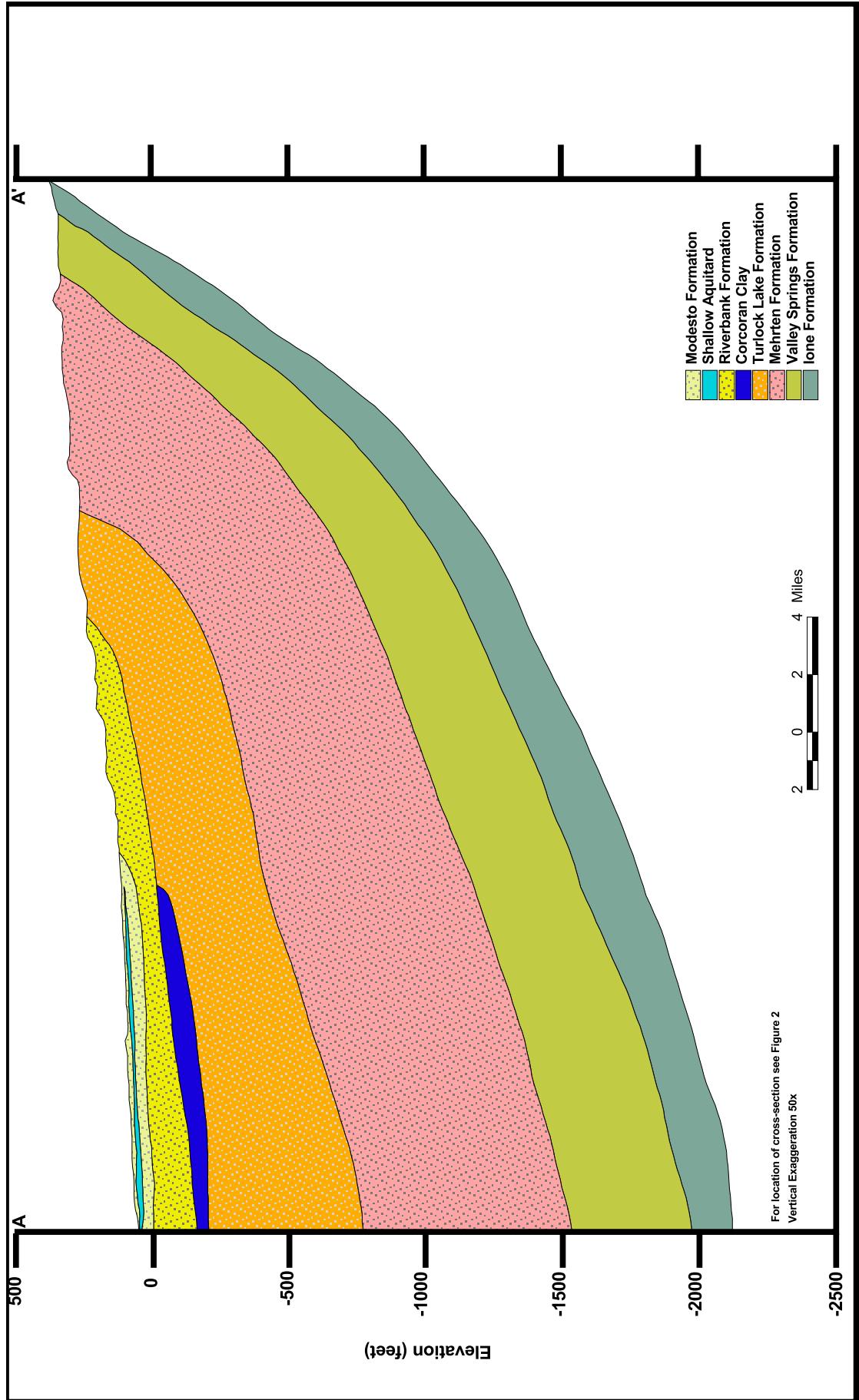
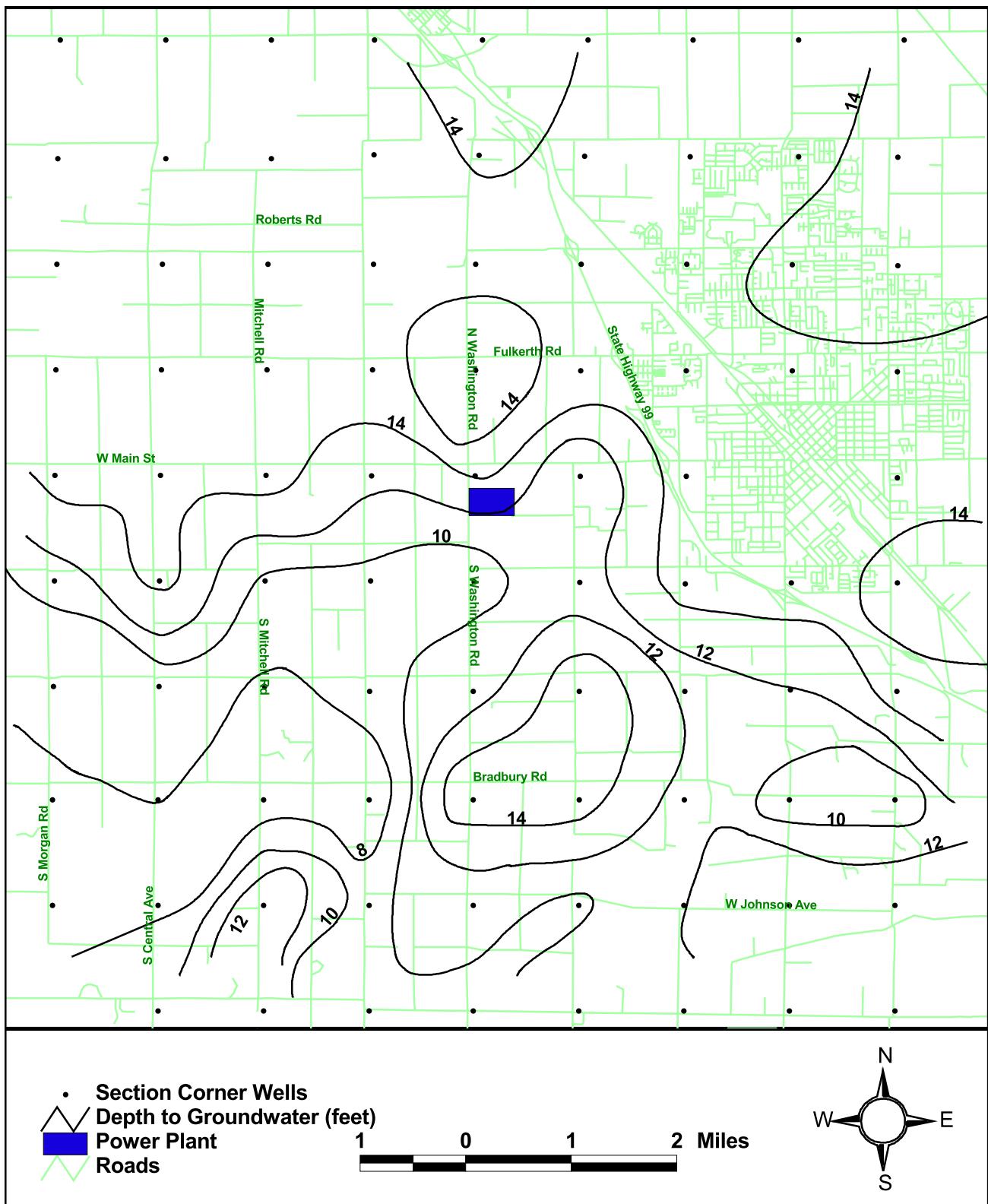
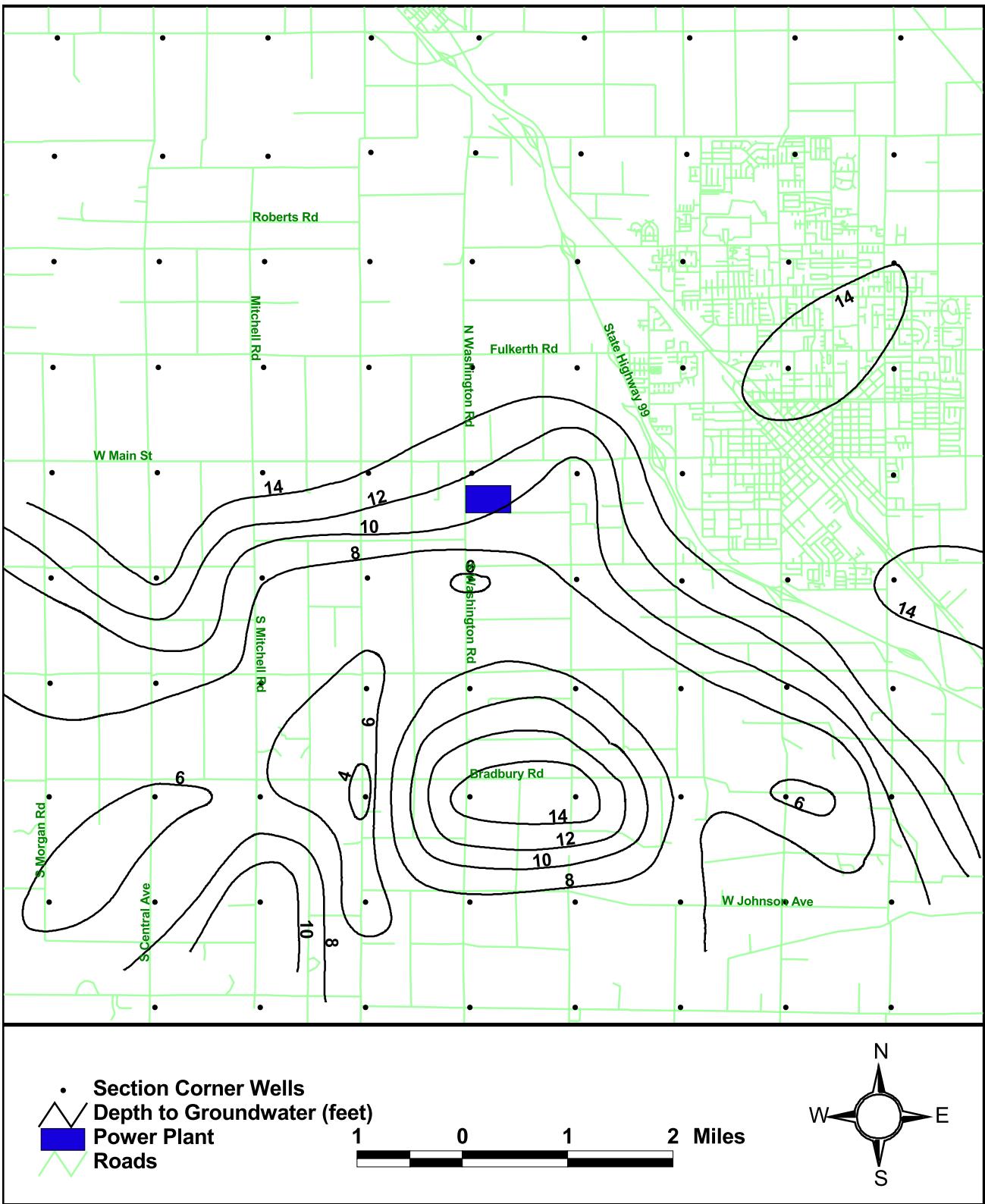


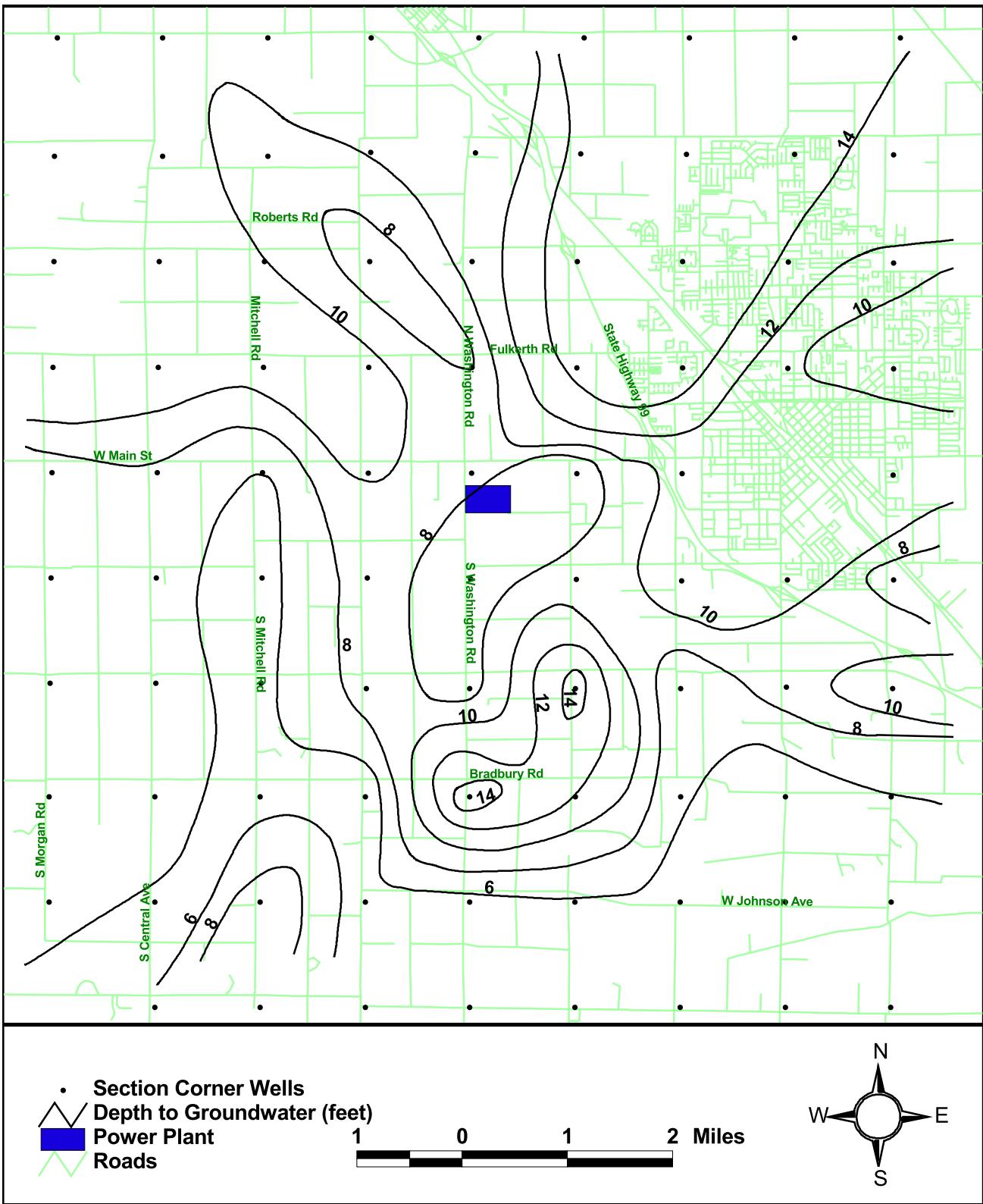
Figure 3 East-West Cross-Section Showing Hydrogeologic Units within the Groundwater Basin



**Figure 4 Depth to Groundwater
in Shallow Aquifer November, 1977**



**Figure 5 Depth to Groundwater
in Shallow Aquifer October, 1991**



**Figure 6 Depth to Groundwater
in Shallow Aquifer October, 2001**

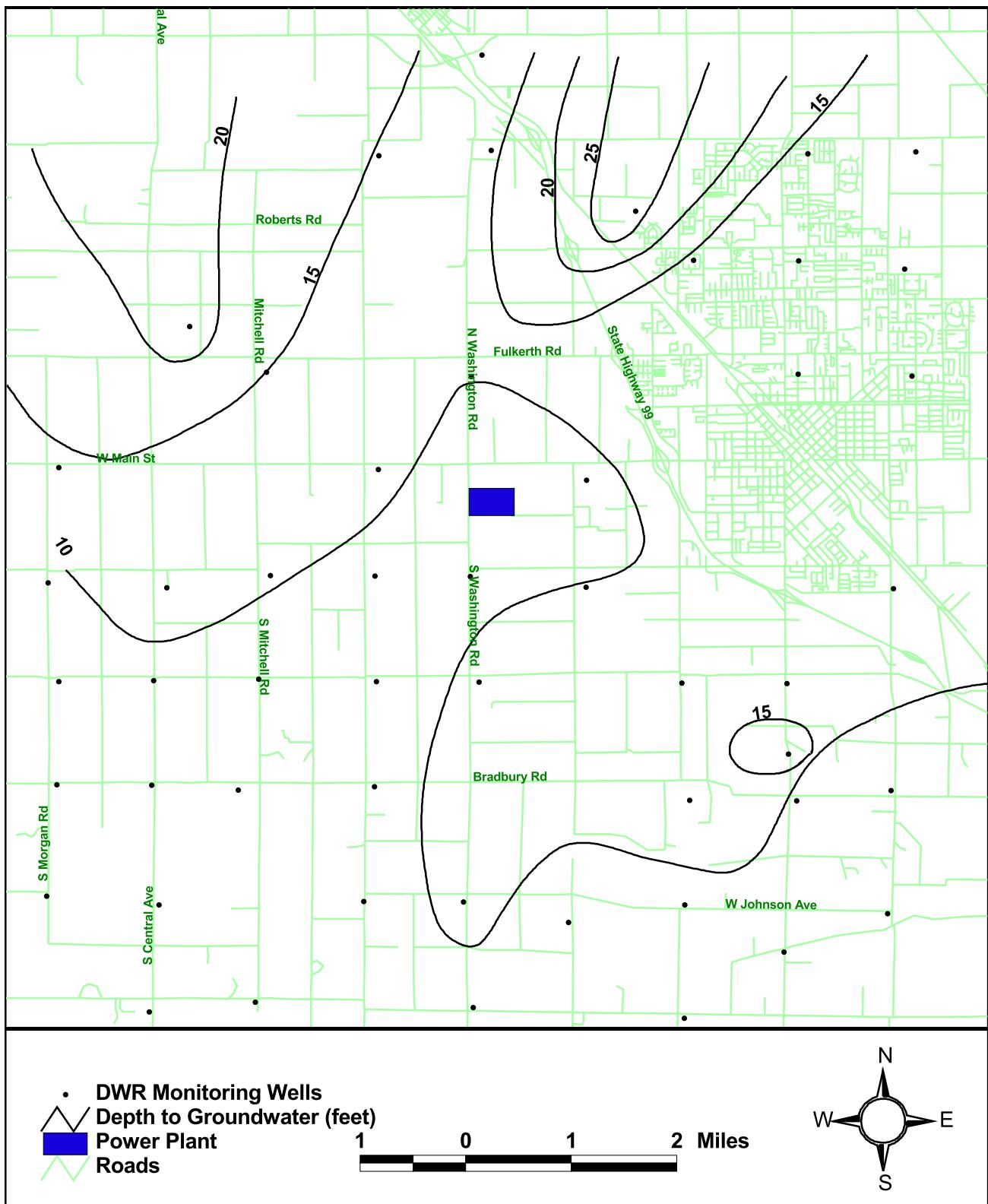


Figure 7 Depth to Groundwater in Upper Aquifer November, 1977

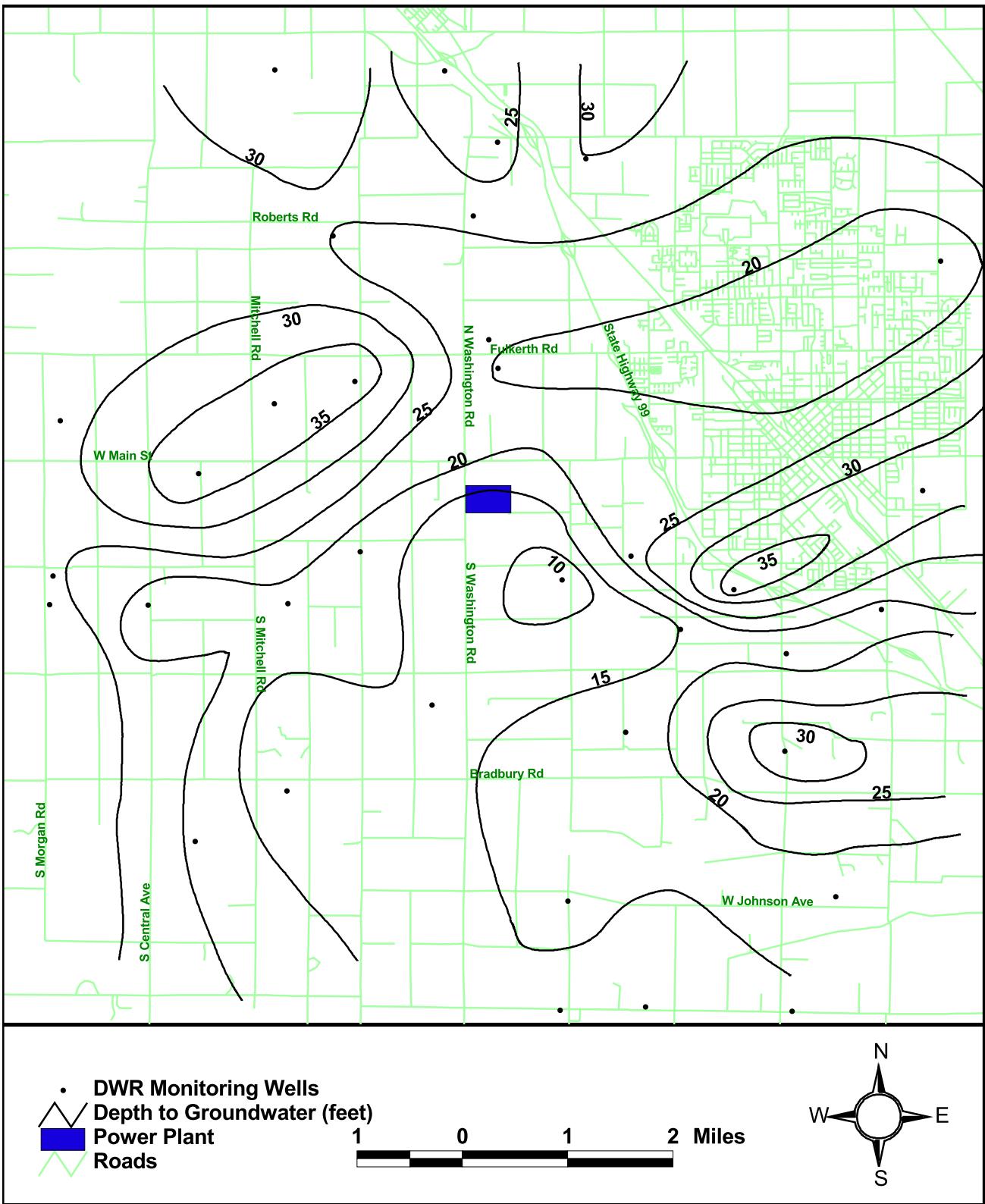
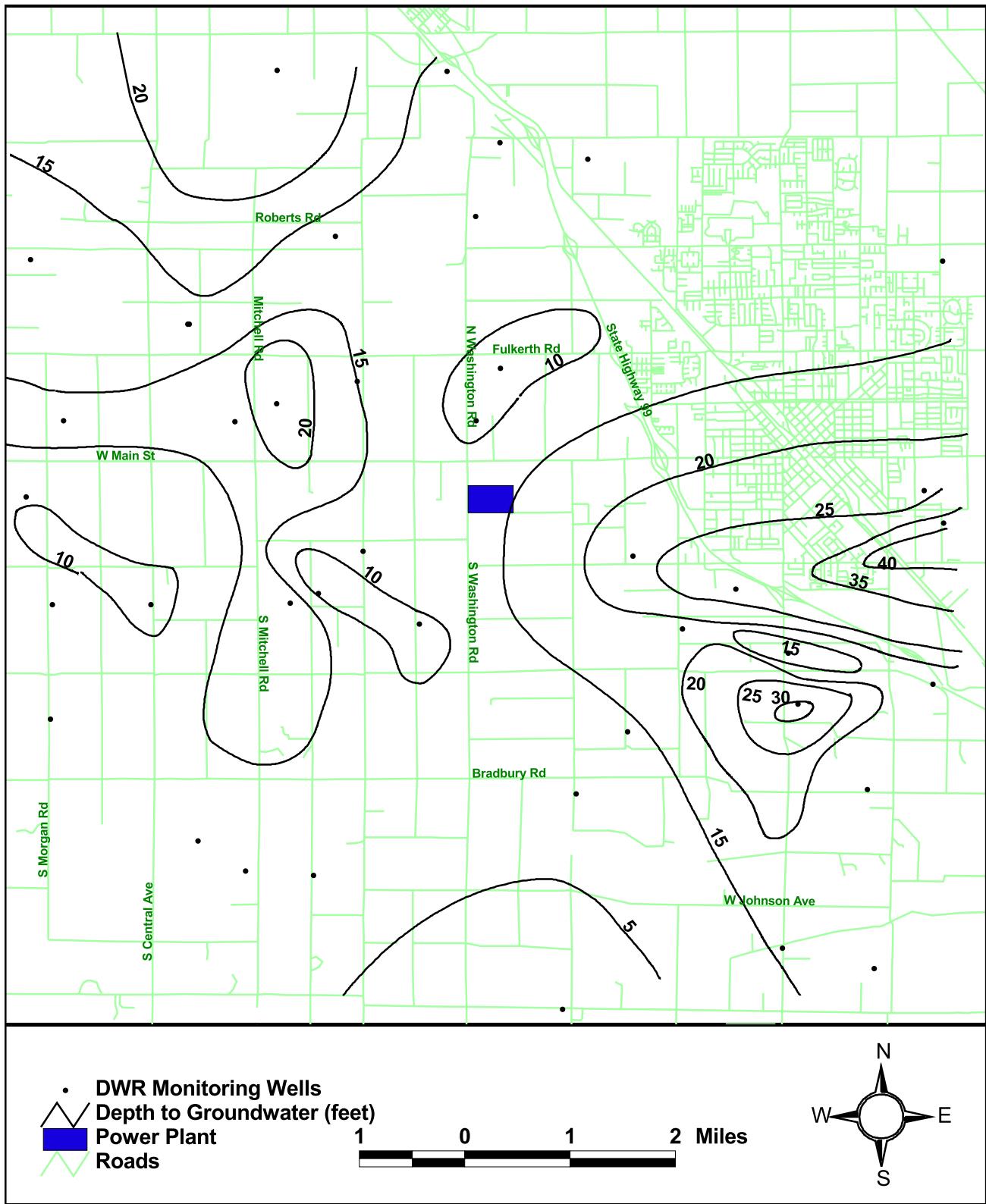


Figure 8 Depth to Groundwater in Upper Aquifer October, 1991



**Figure 9 Depth to Groundwater
in Upper Aquifer October, 2001**

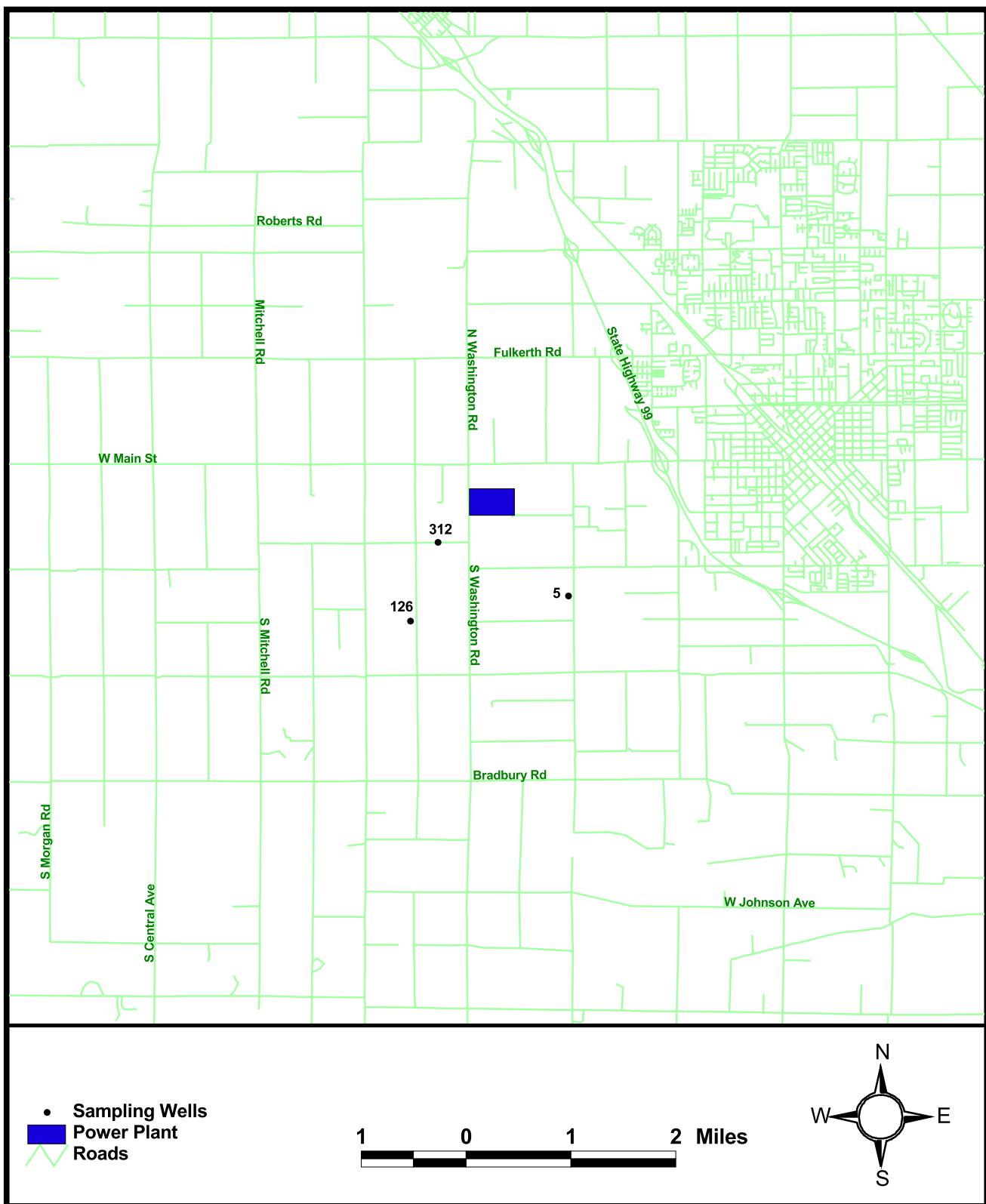
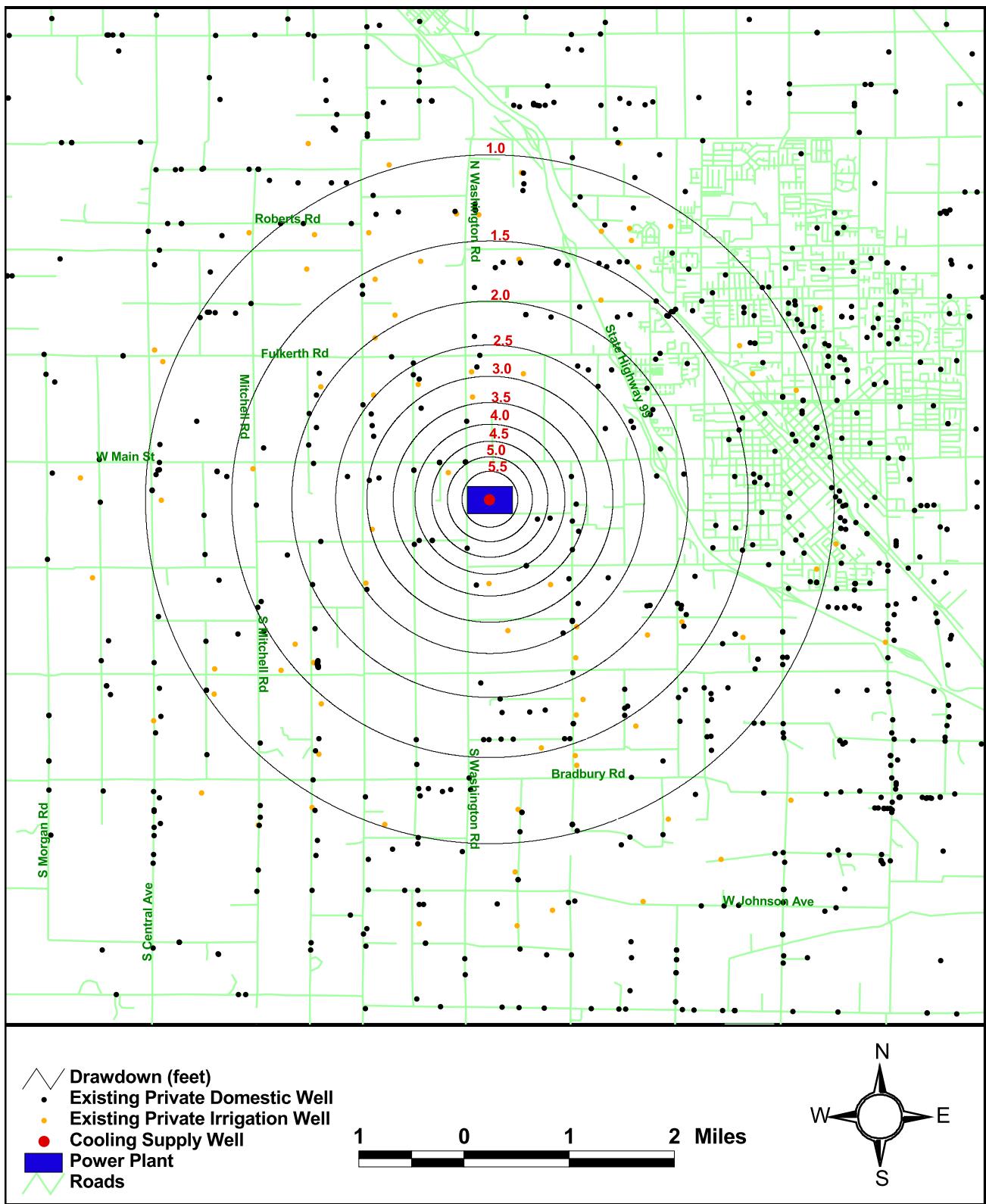
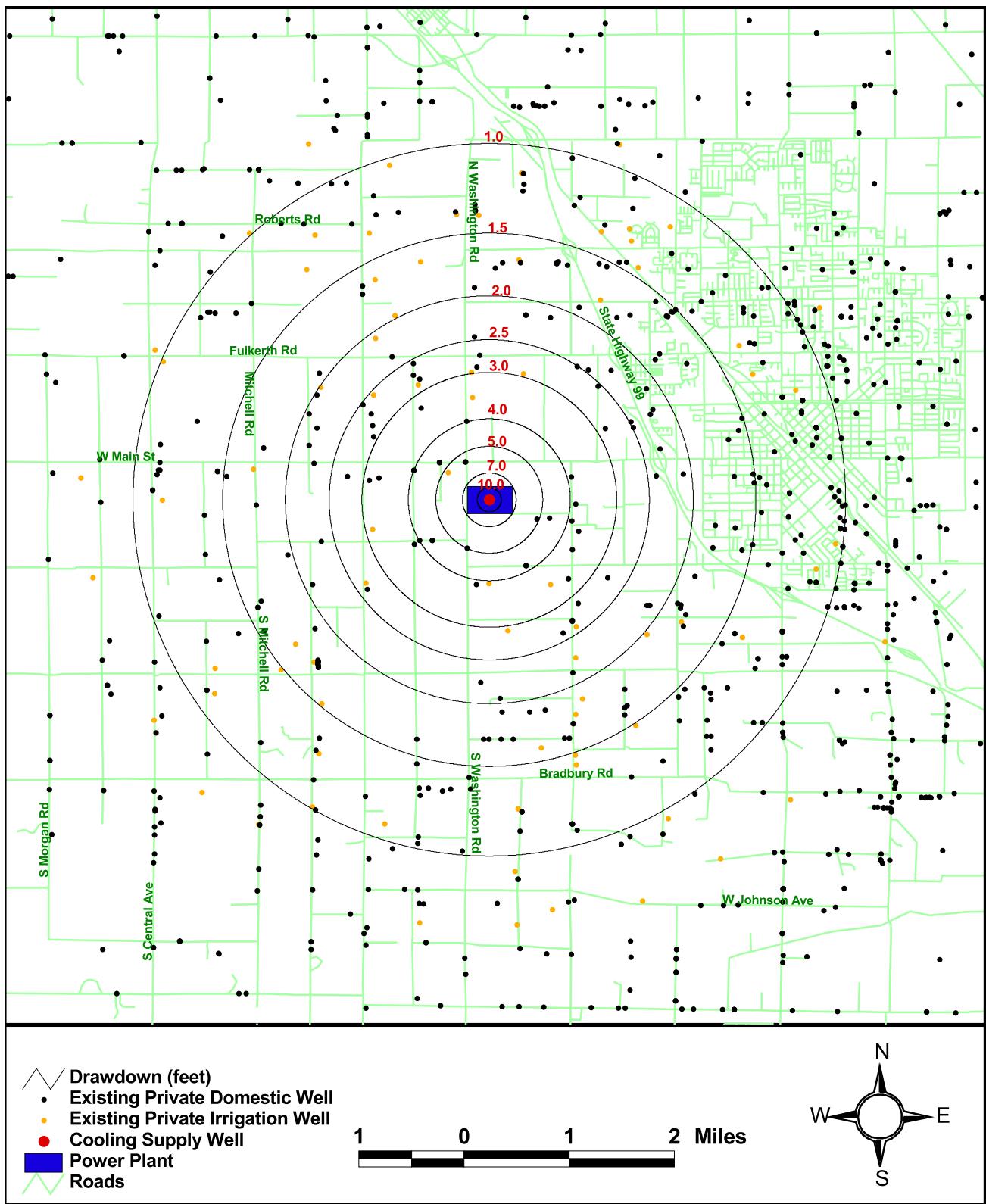


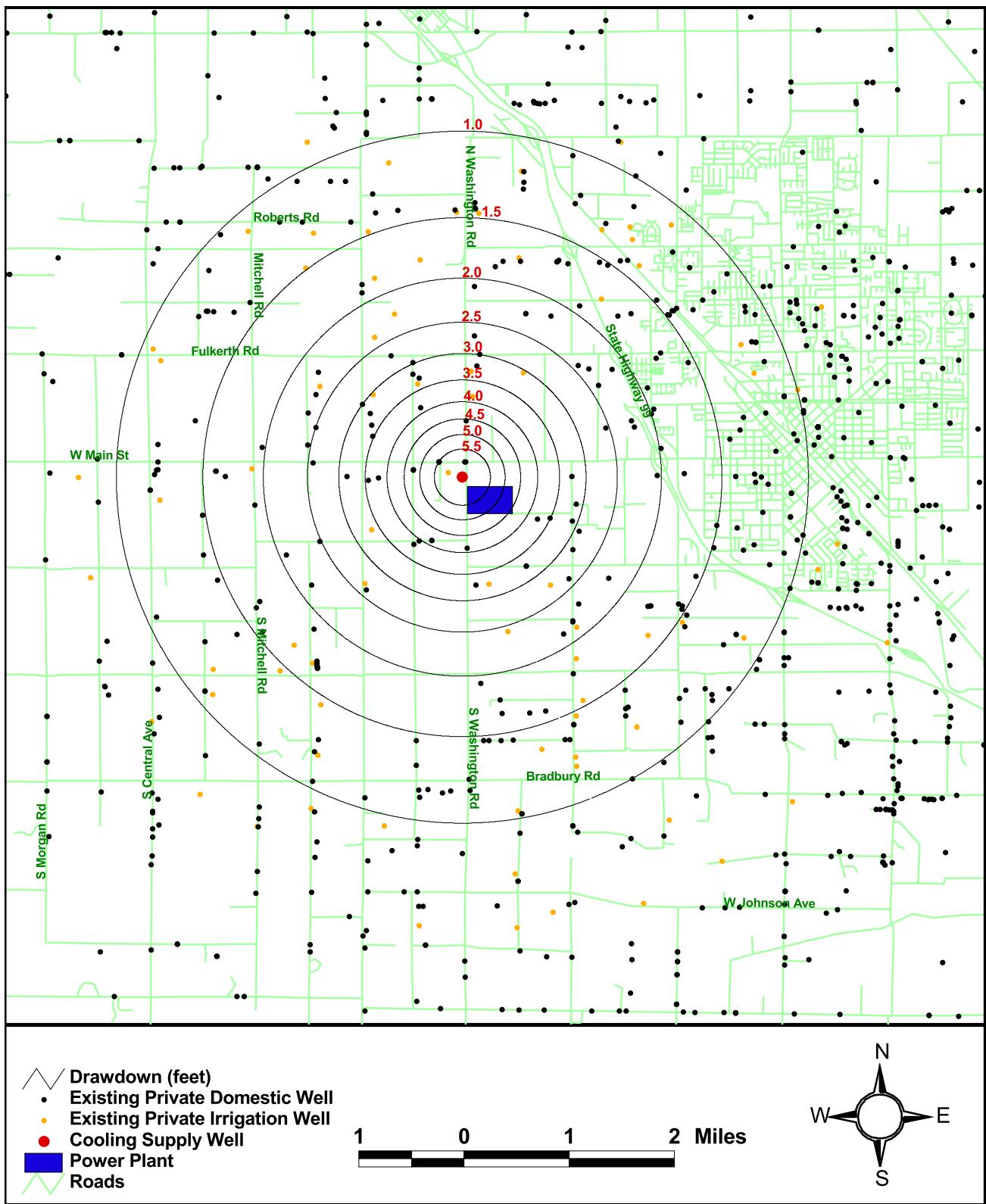
Figure 10 Location of Water-Quality Sampling Wells



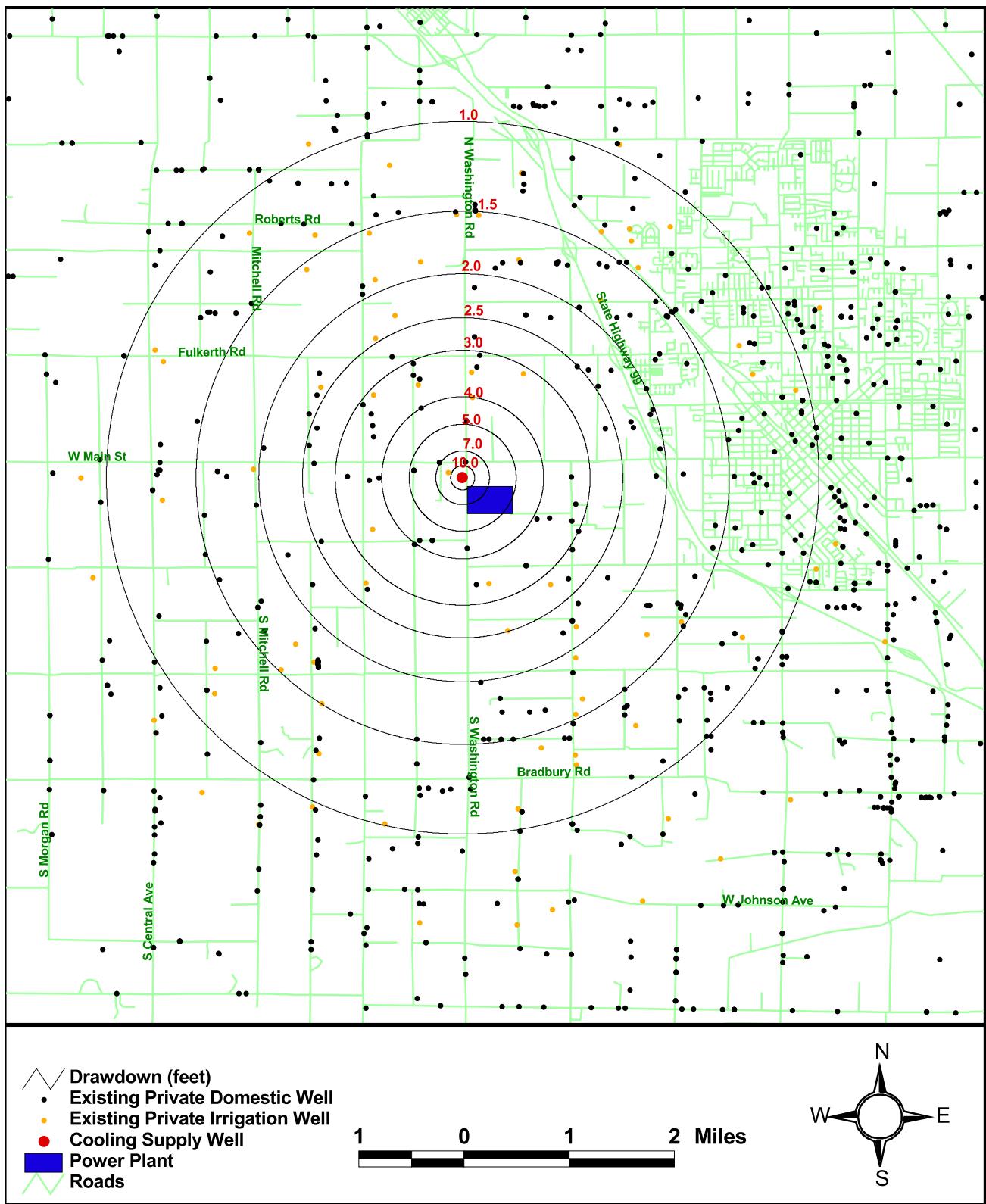
**Figure 11 Drawdown
in Shallow Aquifer after 5 Years
with WEC Site Well**



**Figure 12 Drawdown
in Upper Aquifer after 5 Years
with WEC Site Well**



**Figure 13 Drawdown
in Shallow Aquifer after 5 Years
with South Washington Well**



**Figure 14 Drawdown
in Upper Aquifer after 5 Years
with South Washington Well**

**Table 1. Average Hydraulic Conductivity within the
Turlock Groundwater Basin
(Feet per Day)**

Hydrogeologic Unit	Number of Specific-Capacity Tests	Average Horizontal Hydraulic Conductivity
Modesto Formation	17	407.8
Riverbank Formation	109	86.7
Turlock Lake Formation	175	46.5
Mehrten Formation	61	22.7

Table 2. Groundwater-Quality within Power-Plant Area

Parameter	Units	Title 22 MCL	Well		
			5	126	312
Aluminum	ug/L	1000	44	72	69
Antimony	ug/L	6	<50	<50	<50
Arsenic	ug/L	10	<10	<10	<10
Barium	ug/L	1000	130	124	217
Beryllium	ug/L	4	<5	<5	<5
Cadmium	ug/L	5	<3	<3	<3
Chromium	ug/L	50	<10	<10	<10
Mercury	ug/L	2	<0.4	0.4	0.8
Nickel	ug/L	100	<10	<10	<10
Selenium	ug/L	50	<100	<100	<100
Thallium	ug/L	2	<10	<10	<10
Fluoride	mg/L	2000	<0.1	<0.1	<0.1
Cobalt	ug/L	na	<5	<5	<5
Copper	ug/L	1300	<10	<10	<10
Lead	ug/L	15	<10	<10	<10
Molybdenum	ug/L	na	<10	<10	<10
Silver	ug/L	100	<10	<10	<10
Zinc	ug/L	5000	<10	<10	<10
Boron	ug/L	na	95	110	143
Calcium	mg/L	na	58	79	88
Magnesium	mg/L	na	21	26	32
Sodium	mg/L	na	48	109	102
Potassium	mg/L	na	2.7	4	4.1
Alkalinity	mg/L	na	268	268	380
Sulfate	mg/L	500	29	84	42
Chloride	mg/L	500	16	62	37
Iron 90	ug/L	300	90	<40	<40
Manganese	ug/L	50	<10	<10	11
Ammonia as Nitrogen	mg/L	na	<0.3	<0.3	<0.3
Nitrate	mg/L	45	64	125	149
Nitrite	mg/L	1	<2	<2	<2
Phosphorus	mg/L	na	<0.1	<0.1	<0.1
Strontium	mg/L	na	0.9	1.3	1.3
Silica	mg/L	na	25.6	25.7	25.8
Lithium	mg/L	na	<0.1	<0.1	<0.1
Total Organic Carbon	mg/L	na	1.9	2.4	3.7
Total Dissolved Solids	mg/L	500	420	640	720
Electrical Conductivity	umhos/cm	1600	690	1190	1160

na indicates analyte is not a regulated Title 22 constituent

**Table 3. Potential Drawdown in Existing Private Domestic Wells in Area
(Feet)**

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	
118 N Blaker Rd	189638	6425783	2002859	Certain	125	105	12/10/1985	0.75	0.80	0.87	0.87	0.92	
737 S Blaker Rd	98314	6425828	2000697	Certain	147	107	6/26/1979	0.77	0.82	0.87	0.87	0.93	
3024 S Blaker Rd	250555	6425893	1992753	Certain	152	132	8/15/1988	0.66	0.71	0.69	0.69	0.74	
10407 S Bradbury Rd	246990	6425983	1986207	Certain	150	90	5/20/1982	0.00	0.00	0.00	0.00	0.00	
3312 S Blaker Rd	247491	6426160	1991483	Certain	175	155	8/4/1988	0.00	0.00	0.00	0.00	0.00	
3307 S Blaker Rd	811823	6426161	1991478	Certain	165	nd	2/17/1999	0.00	0.00	0.00	0.00	0.00	
1550 S B St	191167	6426263	1993736	Certain	106	106	5/28/1986	0.72	0.77	0.76	0.76	0.81	
3418 S Blaker Rd	129532	6426345	1991051	Certain	84	84	8/31/1978	0.00	0.00	0.00	0.00	0.00	
10007 Fulkerth Rd	128975	6426990	2008062	Certain	121	121	12/29/1978	0.73	0.78	0.89	0.89	0.94	
10007 Fulkerth Rd	149365	6426990	2008062	Certain	75	75	5/18/1976	0.73	0.78	0.89	0.89	0.94	
1912 E Taylor Rd	426340	6427860	2018791	Certain	160	160	4/12/1993	0.00	0.00	0.00	0.00	0.00	
7725 Central Ave	70222	6428250	2014317	Certain	110	100	4/21/1972	0.00	0.00	0.72	0.72	0.77	
501 S Central Ave	51225	6428435	2001318	Certain	70	69	3/18/1970	1.00	1.05	1.11	1.11	1.16	
507 S Central Ave	66754	6428436	2001298	Certain	nd	77	67	2/9/1971	1.00	1.05	1.11	1.11	1.16
6025 S Central Ave	498206	6428485	1982565	Certain	155	155	5/14/1992	0.00	0.00	0.00	0.00	0.00	
9730 W Bradbury Rd	148629	6428520	1986167	Certain	88	88	7/28/1976	0.00	0.00	0.00	0.00	0.00	
5780 S Central Ave	495115	6428526	1983011	Certain	75	75	2/15/1990	0.00	0.00	0.00	0.00	0.00	
5525 S Central Ave	64867	6428538	1983958	Certain	70	nd	4/15/1987	0.00	0.00	0.00	0.00	0.00	
3030 S Central Ave	251141	6428541	1992649	Certain	160	160	6/6/1987	0.88	0.93	0.89	0.89	0.95	
5443 S Central Ave	96258	6428542	1984367	Certain	178	178	7/21/1980	0.00	0.00	0.00	0.00	0.00	
5221 S Central Ave	811790	6428551	1985180	Certain	100	100	nd	12/3/1998	0.00	0.00	0.00	0.00	0.00
5200 S Central Ave	145903	6428551	1985254	Certain	80	80	60	4/9/1976	0.00	0.00	0.00	0.00	0.00
8331 Central Ave	154233	6428571	2012632	Certain	165	165	10/16/1984	0.00	0.00	0.83	0.83	0.89	
5824 S Central Ave	96665	6428612	1989112	Certain	158	158	nd	4/21/1981	0.73	0.78	0.72	0.72	0.77
2325 E Taylor Rd	47909	6428627	2017408	Certain	255	255	5/2/1977	0.00	0.00	0.00	0.00	0.00	
219 S Central Ave	47907	6428648	2020086	Certain	270	90	7/18/1977	1.01	1.07	1.13	1.13	1.18	
219 S Central Ave	65090	6428739	2002305	Certain	140	120	8/20/1987	1.01	1.07	1.13	1.13	1.19	
2225 Central Ave	21038	6428750	1994966	Certain	68	nd	5/22/1969	0.96	1.02	1.00	1.00	1.06	
219 Central Ave	516483	6428803	2002326	Certain	142	nd	2/16/1998	1.02	1.08	1.14	1.14	1.20	
7936 S Central Ave	154241	6428807	2013364	Certain	120	100	11/2/1984	0.00	0.00	0.81	0.81	0.87	
3513 S Central Ave	21047	6428810	1991358	Certain	84	nd	11/25/1969	0.85	0.90	0.85	0.85	0.91	
306 N Central Ave	29338	6428810	2002708	Certain	130	nd	12/2/1969	1.02	1.07	1.14	1.14	1.20	
4906 S Central Ave	495222	6428816	1985844	Certain	190	nd	10/15/1993	0.00	0.00	0.00	0.00	0.00	
506 N Central Ave	252808	6428825	2003598	Certain	140	120	9/15/1987	1.00	1.06	1.13	1.13	1.19	
5601 S Central Ave	381849	6428862	1984569	Certain	180	160	12/10/1992	0.00	0.00	0.00	0.00	0.00	

**Table 3. Potential Drawdown in Existing Private Domestic Wells in Area
(Feet)**

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with WEC Site Well	
3825 S Central Ave	76520	642891	1989947	Certain	84	84	7/3/1990	0.79	0.85	0.79	0.84	
2331 Roberts Rd	370330	6429230	2014714	Certain	295	275	12/2/1974	0.00	0.00	0.77	0.82	
2466 E Taylor Rd	99488	6429623	2017417	Certain	74	64	4/23/1987	0.00	0.00	0.00	0.00	
2506 E Taylor Rd	64880	6429904	2017420	Certain	112	92	8/7/1975	0.00	0.00	0.00	0.00	
2406 Roberts Rd	151158	6429905	2014714	Certain	142	120	5/24/1978	0.00	0.00	0.82	0.87	
2408 Roberts Rd	129788	6429920	2014715	Certain	140	106				0.82	0.87	
PO Box 949	191158	6430677	2004779	Approx	300	280	1/7/1986	1.14	1.19	1.33	1.39	
8655 Moffett Rd	243235	6430852	2009985	Certain	94	74	10/18/1982	0.95	1.00	1.13	1.19	
2654 E Taylor Rd	325386	6430946	2017429	Certain	170	150	4/23/1990	0.00	0.00	0.71	0.76	
7236 Moffett Rd	168846	6431015	2017491	Certain	300	280	7/7/1987	0.00	0.00	0.71	0.76	
813 S Moffett Rd	29166	6431037	2000053	Certain	137	124	10/20/1977	1.25	1.31	1.41	1.47	
1424 S Moffett Rd	164923	6431092	1998068	Certain	130	110	8/8/1986	1.24	1.30	1.35	1.41	
2719 S Moffett Rd	580320	6431152	1993712	Certain	160	160	6/28/1995	1.13	1.18	1.14	1.20	
3431 S Moffett Rd	326871	6431166	1991252	Certain	120	120	9/11/1989	1.03	1.08	1.01	1.07	
3431 S Moffett Rd	326872	6431166	1991252	Certain	140	120	9/12/1989	1.03	1.08	1.01	1.07	
4419 S Moffett Rd	98947	6431185	1988030	Certain	75	75	6/6/1974	0.86	0.92	0.82	0.88	
8601 Moffet Rd	304062	6431228	2010260	Certain	120	100	6/20/1989	0.96	1.02	1.14	1.20	
495255	6431319	2010258		Approx	330	330	1/11/1994	0.97	1.02	1.15	1.21	
PO Box 7	340945	6431352	2012279	Approx	155	155	4/23/1990	0.86	0.92	1.05	1.11	
PO Box 32	96280	6431597	2010218	Certain	190	190	9/9/1980	0.99	1.05	1.17	1.23	
2642 E Tuolumne Rd	8718 W Main St	226864	6431705	2002262	Certain	125	105	9/4/1981	1.32	1.39	1.52	1.59
8702 W Main St	150826	6431712	2002248	Certain	130	nd	6/23/1985	1.33	1.39	1.52	1.59	
9018 W Linwood Ave	246989	6431796	1996796	Certain	160	160	5/24/1982	1.31	1.37	1.39	1.45	
PO Box 576	22681	6431859	2020924	Approx	119	119	2/28/1977	0.00	0.00	0.00	0.00	
PO Box 645	227049	6431941	2014084	Approx	138	140	12/28/1981	0.79	0.84	0.99	1.04	
8506 W Main St	87171	6432182	2001993	Certain	89	79	2/12/1974	1.40	1.46	1.59	1.66	
2807 E Tuolumne Rd	326998	6432624	2010205	Certain	185	165	3/9/1990	1.06	1.12	1.28	1.34	
8825 Simmons Rd	53725	6432756	1994093	Certain	150	150	8/13/1979	1.31	1.37	1.33	1.39	
2872 E Taylor Rd	326979	6433311	2017436	Certain	170	170	2/2/1990	0.00	0.00	0.84	0.89	
2700 E Tuolumne Rd	290656	6433414	2010694	Certain	190	190	11/13/1988	1.09	1.15	1.33	1.40	
718 S Mitchell Rd	475237	6433669	2000561	Certain	173	173	9/12/1995	1.63	1.70	1.79	1.86	
6612 Prairie Flower Rd	283476	6433709	1981146	Certain	156	156	9/15/1988	0.00	0.00	0.00	0.00	
2213 S Mitchell Rd	495283	6433743	1995415	Certain	160	nd	3/1/1994	1.52	1.58	1.55	1.62	
2912 E Taylor Rd	326846	6433777	2017437	Certain	160	140	8/17/1989	0.66	0.71	0.86	0.92	
2912 E Taylor Rd	433827	6433777	2017437	Certain	200	50	8/19/1991	0.66	0.71	0.86	0.92	

**Table 3. Potential Drawdown in Existing Private Domestic Wells in Area
(Feet)**

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well
2912 E Taylor Rd	83942	6433777	20117437	Certain	62	46	8/22/1973	0.66	0.71	0.86	0.92	0.92
2912 E Taylor Rd	98349	6433777	20117437	Certain	80	70	9/10/1974	0.66	0.71	0.86	0.92	0.92
6112 S Mitchell Rd	495182	6433784	1982237	Certain	200	200	7/12/1993	0.00	0.00	0.00	0.00	0.00
5436 S Mitchell Rd	334938	6433818	1984473	Certain	185	185	4/20/1990	0.80	0.85	0.71	0.77	0.77
5712 S Mitchell Rd	154207	6433863	1984872	Certain	195	175	11/20/1984	0.83	0.88	0.75	0.80	0.80
5701 S Mitchell Rd	86192	6433877	1985472	Certain	120	120	7/20/1979	0.87	0.92	0.79	0.84	0.84
4419 S Mitchell Rd	96919	6433882	1988617	Certain	175	175	6/24/1980	1.07	1.13	1.02	1.08	1.08
2230 S Mitchell Rd	245970	6433908	1995723	Certain	125	105	3/3/1982	1.56	1.62	1.59	1.66	1.66
700 N Mitchell Rd	304056	6434035	2003435	Certain	160	140	6/19/1989	1.62	1.68	1.86	1.93	1.93
8407 Simmons Rd	96263	6434059	1994225	Certain	138	123	8/6/1980	1.49	1.56	1.49	1.56	1.56
2914 Taylor Rd	347506	6434324	2016867	Certain	120	100	6/22/1990	0.73	0.78	0.93	0.99	0.99
3243 Roberts Rd	142808	6434891	2014715	Certain	120	120	9/12/1978	0.92	0.97	1.12	1.18	1.18
7606 Clayton Rd	187152	6435244	1998060	Certain	170	150	8/25/1986	1.84	1.91	1.97	2.04	2.04
PO Box 1814	51219	6435760	2016750	Approx	81	78	6/21/1970	0.81	0.86	1.01	1.07	1.07
3437 Roberts Rd	64846	6436041	2014710	Certain	150	150	2/23/1987	0.98	1.03	1.18	1.24	1.24
313 N Prairie Flower Rd	246530	6436308	2003566	Certain	350	nd	6/3/1985	1.98	2.05	2.36	2.43	2.43
PO Box 663	344936	6436324	2005155	Approx	285	285	7/18/1990	1.83	1.90	2.26	2.33	2.33
6401 S Prairie Flower Rd	64825	6436487	1981194	Certain	135	135	1/27/1986	0.67	0.72	0.00	0.00	0.00
1731 S Prairie Flower Rd	822543	6436495	1996556	Certain	125	125	nd	6/3/1999	2.02	2.06	2.13	2.13
4919 S Prairie Flower Rd	46483	6436533	1986745	Certain	114	114	8/12/1977	1.10	1.16	1.01	1.06	1.06
313 N Prairie Flower Rd	26563	6436556	2002660	Certain	76	76	7/2/1977	2.10	2.17	2.44	2.51	2.51
Turlock	115630	6436615	1994344	Approx	108	nd	6/25/1965	1.82	1.89	1.79	1.86	1.86
#1 Redondo St	70217	6436630	1985226	Certain	61	61	4/3/1972	0.99	1.05	0.89	0.95	0.95
PO Box 710	247395	6436651	1988216	Approx	110	90	7/30/1982	1.22	1.28	1.13	1.19	1.19
5931 S Prairie Flower Rd	46541	6436674	1982952	Certain	122	122	9/20/1977	0.82	0.87	0.71	0.76	0.76
5481 Grassy Run Rd	37451	6436704	2006084	Approx	156	156	6/7/1991	1.81	1.88	2.25	2.32	2.32
PO Box 6053	70774	6436705	2004445	Approx	113	113	2/25/1980	1.98	2.05	2.40	2.47	2.47
3107 S Prairie Flower Rd	157634	6436751	1992528	Certain	87	87	6/5/1976	1.68	1.75	1.61	1.67	1.67
3107 S Prairie Flower Rd	86056	6436751	1992572	Certain	165	165	1/8/1979	1.69	1.76	1.61	1.68	1.68
3107 S Prairie Flower Rd	334909	6436751	1992675	Certain	145	145	1/30/1990	1.70	1.77	1.62	1.69	1.69
4218 Prairie Flower Rd	29203	6436754	1983704	Certain	283	283	10/24/1978	0.88	0.93	0.77	0.83	0.83
3100 Prairie Flower Rd	822519	6436756	1992600	Certain	110	110	4/30/1999	1.69	1.76	1.62	1.68	1.68
3107 S Prairie Flower Rd	243974	6436762	1992755	Certain	180	180	5/28/1983	1.71	1.77	1.63	1.70	1.70
3107 S Prairie Flower Rd	484005	6436773	1992683	Certain	275	275	8/24/1991	1.70	1.77	1.63	1.69	1.69
3107 Prairie Flower Rd	580202	6436780	1992424	Certain	160	160	7/27/1995	1.68	1.74	1.60	1.66	1.66

**Table 3. Potential Drawdown in Existing Private Domestic Wells in Area
(Feet)**

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	
3107 S Prairie Flower Rd	289681	6436781	1992470	Certain	268	228	1/16/1989	1.68	1.75	1.60	1.67	1.66	
3107 S Prairie Flower Rd	243207	6436781	1992397	Certain	95	75	9/21/1982	1.67	1.74	1.60	1.66	1.66	
4313 Prairie Flower Rd	252929	6436828	1988825	Certain	119	99	3/1/1988	1.30	1.37	1.18	1.24	1.24	
1330 Prairie Flower Rd	76015	6436832	2001787	Certain	240	200	6/22/1981	1.73	1.80	2.15	2.22	2.22	
7000 Clayton Rd	290667	6436914	1998741	Certain	175	155	11/17/1988	2.24	2.31	2.38	2.45	2.45	
Livingston	92807	6437176	2020890	Approx	122	122	5/6/1974	0.00	0.00	0.74	0.79	0.79	
PO Box 216	334966	6437442	2016737	Approx	222	182	8/26/1989	0.88	0.94	1.08	1.14	1.14	
3643 Warner Rd	481186	6437559	2019507	Certain	135	20	6/5/1991	0.66	0.71	0.86	0.92	0.92	
5000 Escar	65055	6437643	2019402	Approx	117	97	3/13/1987	0.68	0.73	0.87	0.93	0.93	
3737 Warner Rd	46500	6437721	2020173	Certain	127	127	1/6/1978	0.00	0.00	0.81	0.86	0.86	
3700 W Taylor Rd	86583	6438195	2016740	Approx	130	nd	3/27/1972	0.91	0.97	1.11	1.17	1.17	
6725 W Main St	495221	6438253	2001992	Certain	150	150	10/13/1993	2.51	2.58	2.97	3.05	3.05	
6718 Elaine Rd	247375	6438395	1979974	Certain	120	120	80	0.00	0.00	0.00	0.00	0.00	
3901 Roberts Rd	168831	6438453	2014709	Certain	120	120	100	1.08	1.14	1.34	1.40	1.40	
187200	6439004	20111581	Certain	160	160	140	12/4/1986	1.45	1.51	1.78	1.84	1.84	
8342 Faith Home Rd	325321	6439008	2011159	Certain	140	140	100	11/7/1989	1.50	1.56	1.83	1.90	1.90
8413 Faith Home Rd	83970	6439033	2005597	Certain	75	75	5/3/1973	2.29	2.36	2.87	2.94	2.94	
8336 N Faith Home Rd	150867	6439064	1979012	Certain	67	nd	nd	11/1/1985	0.00	0.00	0.00	0.00	0.00
7337 S Faith Home Rd	252871	6439240	2020213	Certain	160	160	140	12/4/1987	0.00	0.00	0.85	0.90	0.90
4930 S Faith Home Rd	250595	6439151	1985913	Certain	126	126	106	9/19/1988	1.15	1.21	1.03	1.09	1.09
7130 Faith Home Rd	366567	6439227	1979289	Certain	148	148	128	3/16/1991	0.00	0.00	0.00	0.00	0.00
2124 S Faith Home Rd	96270	6439234	1996323	Certain	190	195	175	8/21/1980	2.57	2.64	2.50	2.57	2.57
6643 Faith Home Rd	65066	6439295	1981224	Certain	155	155	135	3/30/1987	0.77	0.82	0.00	0.00	0.00
6618 Faith Home Rd	146829	6439240	2020095	Certain	57	57	47	8/11/1975	0.67	0.72	0.86	0.91	0.91
6912 Faith Home Rd	197523	6439243	2019202	Certain	175	175	155	2/7/1986	0.74	0.79	0.94	0.99	0.99
6955 Faith Home Rd	374590	6439243	2019091	Certain	250	250	235	7/12/1991	0.75	0.80	0.95	1.00	1.00
6224 S Faith Home Rd	516467	6439507	2004561	Certain	180	180	nd	12/12/1997	2.52	2.59	3.18	3.25	3.25
5818 S Faith Home Rd	226871	6439306	1982769	Certain	85	85	65	9/24/1981	0.90	0.95	0.77	0.82	0.82
231 S Faith Home Rd	498216	6439342	2001793	Certain	340	nd	6/4/1992	2.86	2.93	3.35	3.45	3.45	
PO Box 1803	226551	6439438	2005142	Approx	125	125	105	10/6/1981	2.42	2.49	3.06	3.14	3.14
1100 N Faith Home Rd	516467	6439507	2004561	Certain	180	180	nd	12/13/1976	1.01	1.07	1.21	1.27	1.27
4809 Zeeling Rd	21664	6439553	2016109	Approx	120	135	110	11/3/1972	2.63	2.70	3.28	3.36	3.36
8336 N Faith Home Rd	76519	6439559	2004004	Certain	43	43	34	1/21/1977	1.09	1.15	1.34	1.41	1.41
6001 W Zeeling Rd	22419	6439690	2015172	Certain	103	103	93	9/10/1976	3.00	3.08	3.57	3.69	3.69
PO Box 1867	21483	6439829	2001920	Certain	73	73	63	1/9/1975	0.00	0.00	0.82	0.87	0.87
24238 S Mohler Rd	125778	6440060	2020784	Certain	83	83	70	1/9/1975	0.00	0.00	0.00	0.00	0.00

Table 3. Potential Drawdown in Existing Private Domestic Wells in Area (Feet)

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(Feet)**

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well
5019 Christofferson Rd 4813 W Main St 4800 W Main St	219499 6444161 6444197	1983140 2002718 2002719		Certain Certain Certain	115 237 118	95 237 98	8/28/1984 9/22/1992 9/4/1984	1.03 4.40 4.41	1.08 4.68 4.69	0.86 5.84 5.85	0.92 8.80 8.87	
601 N Washington Rd 1318 S Washington Rd 4631 S Washington Rd 5107 W Bradbury Rd	326842 284295 704844 76861	2004767 1998398 1986853 1986280		Certain Certain Certain Certain	235 228 105 91	215 208 nd 71	8/16/1989 9/20/1988 7/2/1998 5/18/1981	3.46 4.96 1.46 1.38	3.56 5.57 1.52 1.44	4.56 4.10 1.19 1.14	4.90 4.31 1.25 1.20	
PO Box 352 5672 Almaden Express 4113 N Washington Rd 4218 W Washington Rd	361911 125365 501989 247365	6444637 6444638 6444659 6444666	2011496 2009019 2015418 2015673	Approx Approx Certain Certain	255 120 33 125	235 100 nd 105	8/29/1990 4/28/1975 3/16/1993 6/25/1982	1.72 2.21 1.17 1.15	1.78 2.28 1.23 1.20	2.10 2.72 1.43 1.40	2.17 2.79 1.50 1.46	
4113 N Washington Rd 4113 N Washington Rd Turlock 1706 N Washington Rd	150880 192248 71008 99416	6444673 6444691 6444719 6444760	2015396 2015365 1996553 2007505	Certain Certain Approx Certain	110 82 250 60	90 82 225 50	10/4/1985 8/15/1986 1/26/1980 9/22/1974	1.17 1.17 4.08 2.56	1.23 1.23 4.27 2.63	1.44 1.44 3.25 3.21	1.50 1.50 3.33 3.29	
4591 Fulkert Rd Turlock 4600 Idaho Rd 4519 Idaho Rd	813196 21006 26566 465292	6444906 6444953 1991636 6445097	2008083 1991636 Approx 1988781	Certain Certain Approx Certain	220 nd 72 81	nd nd nd 61	12/7/1998 1/3/1969 5/7/1977 11/23/1993	2.43 2.34 2.41 1.74	2.50 2.34 2.41 1.74	3.02 1.91 1.47 1.46	3.10 1.98 1.53 1.53	
4500 W Monte Vista Ave 20271 W Johnson St 4330 Silva Rd 4318 Idaho Rd	247486 64868 53672 250459	6445688 6445770 6445920 6445353	2012484 1980515 1990826 1988783	Certain Certain Certain Certain	145 250 80 105	125 230 70 105	8/1/1988 4/14/1987 10/26/1979 5/24/1988	1.58 0.80 2.16 1.75	1.64 0.85 2.23 1.82	1.86 0.00 1.75 1.46	1.93 1.98 1.82 1.53	
11113 Copperopolis 1201 W Monte Vista Ave 4124 Idaho Rd 4816 W Barnhart Rd	475304 361925 174576 197526	6446020 6446056 6446585 6446615	1990142 2012752 1988795 2020639	Approx Certain Certain Certain	118 230 95 245	nd 200 75 230	3/11/1996 9/25/1990 8/29/1985 2/26/1986	2.01 1.54 1.74 0.71	2.08 1.60 1.81 0.76	1.65 1.80 1.45 0.87	1.72 1.87 1.51 0.92	
9579 Hultberg Rd 9579 Hultberg Rd 2219 Barnhart Rd 5612 Hultberg Rd	197505 21231 304094 128977	6446819 6446819 6446901 6446917	1981748 1981748 2020579 1984156	Certain Certain Certain Certain	110 110 170 230	80 95 150 190	11/27/1985 11/10/1976 7/7/1989 11/9/1978	0.91 0.91 0.71 1.12	0.96 0.96 0.76 1.18	0.73 0.73 0.87 0.94	0.78 0.78 0.93 0.99	
4113 Monte Vista Ave 5837 Hultberg Rd 6025 Hultberg Rd PO Box 2996	303904 250497 29204 164787	6446945 6447009 6447023 6447072	2012743 1985124 1985122 2016364	Certain Certain Certain Approx	220 276 82 125	200 254 67 90	1/20/1989 6/24/1988 11/1/1978 6/8/1987	1.53 1.21 1.21 1.08	1.60 1.27 1.27 1.26	1.78 1.02 1.02 1.26	1.85 1.08 1.08 1.32	

Table 3. Potential Drawdown in Existing Private Domestic Wells in Area (Feet)

**Table 3. Potential Drawdown in Existing Private Domestic Wells in Area
(Feet)**

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	
3306 S Tegner Rd	822809	6449570	1992130	Certain	260	nd	5/8/1999	2.26	2.33	1.78	1.85	1.85	
4018 S Tegner Rd	580274	6449600	1989569	Certain	250	nd	3/23/1995	1.76	1.83	1.44	1.50	1.50	
4019 S Tegner Rd	99478	6449600	1989569	Certain	73	73	11/3/1974	1.76	1.83	1.44	1.50	1.50	
10069 W Tegner Rd	76838	6449663	1980679	Certain	110	90	5/13/1981	0.78	0.83	0.00	0.00	0.00	
3919 N Golden State Blvd	47957	6449665	2015629	Certain	190	160	6/28/1977	1.11	1.17	1.27	1.33	1.33	
Turlock	23000	6449737	2000611	Approx	127	124	7/15/1977	3.86	4.01	3.26	3.34	3.34	
2624 White Rd	96236	6449788	1984206	Certain	255	235	7/16/1980	1.08	1.14	0.89	0.94	0.94	
1901 N Tegner Rd	29175	6449811	2007541	Certain	140	125	11/4/1977	2.32	2.39	2.52	2.59	2.59	
11807 Valley Home Rd	306511	6449841	1995617	Approx	165	125	8/24/1987	3.04	3.12	2.38	2.45	2.45	
4331 S Shirik Rd	247066	6449868	1999245	Approx	140	120	1/8/1983	3.78	3.92	3.06	3.14	3.14	
PO Box 3838	150804	6449905	2010510	Approx	180	nd	6/14/1985	1.75	1.82	1.97	2.04	2.04	
4600 W Tegner Rd	168872	6449945	2016045	Certain	215	215	8/12/1987	1.07	1.12	1.20	1.26	1.26	
1331 Diane Dr	144492	6450355	2007363	Approx	100	80	3/1/1978	2.29	2.36	2.46	2.53	2.53	
1001 Dianne Rd	243225	6450845	2006532	Certain	113	93	10/28/1982	2.38	2.45	2.49	2.56	2.56	
PO Box 2968	409155	6450898	2012705	Approx	180	180	2/11/1993	1.40	1.46	1.57	1.64	1.64	
3436 Barnhart Rd	70458	6450987	2020636	Certain	nd	70	60	6/1/1972	0.00	0.00	0.78	0.84	0.84
3842 N Mt View Rd	90452	6451192	2014642	Certain	75	71	55	7/24/1974	1.15	1.21	1.31	1.37	1.37
PO Box 625	21345	6451202	2004405	Approx	128	128	108	3/7/1977	2.73	2.80	2.70	2.77	2.77
2655 W Monte Vista Ave	433927	6451289	2012544	Certain	140	140	nd	1/3/1992	1.40	1.46	1.56	1.63	1.63
Turlock	21031	6451343	1996898	Approx	105	nd	nd	5/14/1969	2.91	2.99	2.33	2.40	2.40
3000 Eye St	60861	6451518	2007345	Approx	70	67	56	3/25/1971	2.14	2.21	2.26	2.33	2.33
5324 Mountain View Rd	128974	6451714	2019455	Certain	101	101	81	12/22/1978	0.73	0.79	0.86	0.91	0.91
PO Box 3838	129517	6451804	2010005	Approx	120	120	80	7/21/1978	1.69	1.76	1.81	1.88	1.88
4961 Mt View Rd	811832	6451833	2018760	Certain	115	115	nd	3/9/1999	0.79	0.84	0.91	0.97	0.97
2525 E Monte Vista Ave	250485	6451923	2012778	Certain	285	285	265	6/15/1988	1.33	1.39	1.48	1.55	1.55
6107 Mountain View Rd	128683	6451947	2020976	Certain	120	120	100	6/2/1978	0.00	0.00	0.73	0.78	0.78
PO Box 949	532844	6452019	1983486	Approx	120	120	nd	8/12/1997	0.96	1.02	0.76	0.82	0.82
3501 S Kilroy Rd	168903	6452183	1991298	Certain	258	258	238	9/26/1987	1.80	1.87	1.48	1.54	1.54
3800 S Kilroy Rd	580313	6452185	1990370	Certain	250	250	nd	6/13/1995	1.69	1.76	1.36	1.43	1.43
3918 S Kilroy Rd	495232	6452186	1990005	Certain	245	245	nd	11/2/1993	1.65	1.72	1.32	1.38	1.38
2406 E Monte Vista Ave	147201	6452291	2012788	Certain	130	130	118	8/30/1978	1.30	1.36	1.45	1.52	1.52
3607 S Kilroy Rd	290691	6452323	1990460	Certain	255	255	235	12/13/1988	1.69	1.76	1.36	1.43	1.43
PO Box 354	96740	6452395	2020734	Approx	125	125	105	5/7/1980	0.00	0.00	0.73	0.78	0.78
21321 White Rd	153496	6452457	1983882	Certain	225	nd	nd	5/28/1985	0.98	1.04	0.78	0.83	0.83
2442 Tuolumne Rd	580338	6452458	2010123	Certain	220	nd	nd	8/11/1995	1.62	1.69	1.73	1.80	1.80

**Table 3. Potential Drawdown in Existing Private Domestic Wells in Area
(Feet)**

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well
601 Century Blvd 2307 Bradbury Rd Turlock	149382	6452499	2004764	Approx Certain	72 221	62 nd	5/4/1976 2/22/1993	2.38 1.23	2.45 1.29	2.34 1.02	2.41 1.08	
700 W Walnut Rd PO Box 127	498386 128911	6452526 6452606	1986877 2015483	Approx Certain	140	120	3/21/1978	1.04 2.40	1.09 2.47	1.14 2.34	1.20 2.41	
2612 E Barnhart Rd	125873	6452628	2004458	Certain	87	67	11/10/1975	0.91	0.96	1.02	1.07	
2171 Aspenwood Dr	149802	6452696	20117006	Approx	107	97	1/2/15/1975	0.00	0.00	0.71	0.76	
2407 W Glenwood Rd	247369	6453208	2020659	Certain	151	131	6/24/1982	3/8/1985	2.01	2.03	2.10	
2407 Glenwood Ave	153482	6453289	2006421	Certain	275	nd						
2406 Glenwood Ave	374401	6453305	1995501	Certain	235	215	12/20/1990	2.25	2.32	1.80	1.87	
725 N Tully Rd	71046	6453439	1995523	Certain	215	200	6/23/1980	2.23	2.30	1.79	1.85	
2211 Solitude Ave	147207	6453456	1995516	Certain	175	167	7/28/1978	2.22	2.29	1.78	1.85	
2500 Barnhart Rd	580335	6453479	2005112	Certain	290	290	8/9/1995	2.16	2.23	2.10	2.17	
1980 Cody Ct	164340	6453593	2005354	Certain	155	135	11/20/1986	2.10	2.17	2.06	2.13	
426304	96225	6453600	2020818	Certain	117	102	7/2/1980	0.00	0.00	0.68	0.73	
600 N Tully Rd	580254	6453735	2007887	Certain	255	255	2/8/1995	1.76	1.83	1.79	1.86	
2007 W Main St	304075	6453775	2002031	Certain	95	75	6/27/1989	2.38	2.45	2.16	2.23	
2325 E Taylor Rd	46937	6453938	2018150	Certain	293	248	8/28/1977	0.77	0.82	0.88	0.93	
1890 Fulkerth Rd	498263	6453952	2008171	Certain	315	315	7/14/1992	1.71	1.77	1.75	1.81	
22630 W Tuolumne Ave	650533	6453973	2003392	Certain	203	203	3/7/1987	2.24	2.31	2.09	2.16	
Turlock	252977	6454106	1984012	Certain	245	225	5/7/1988	0.93	0.98	0.73	0.78	
2630 W Tuolumne Ave	70460	6454113	1987696	Approx	nd	63	1/7/1972	1.21	1.28	1.01	1.07	
2007 W Tuolumne Ave	96664	6454294	2010069	Certain	158	148	11/12/1980	1.47	1.53	1.54	1.61	
2618 N Golden State Blvd	53749	6454367	2010051	Certain	90	70	4/1/1980	1.46	1.53	1.54	1.60	
1560 Springville	226896	6454525	2010284	Certain	225	205	10/12/1981	1.42	1.49	1.50	1.56	
2700 N Golden State Blvd	65095	6454553	2013211	Certain	185	165	5/1/1987	1.13	1.19	1.20	1.26	
2310 N Walnut Rd	252874	6454602	2010262	Certain	245	205	12/14/1987	1.42	1.48	1.49	1.55	
2207 S Walnut Rd	21245	6454738	2010388	Certain	153	138	10/28/1976	1.39	1.46	1.46	1.53	
1800 Glenwood Ln	340995	6454835	1995608	Certain	290	290	6/1/1990	1.96	2.03	1.62	1.69	
1800 Glenwood Ln	326943	6454889	1990899	Certain	240	240	11/27/1989	1.50	1.57	1.19	1.25	
Turlock	21046	6454956	1989707	Approx	72	75	11/24/1967	1.37	1.43	1.11	1.16	
1800 Glenwood Ln	21016	6455004	1995339	Certain	nd	nd	2/21/1969	1.90	1.97	1.58	1.65	
1600 W Main St	90892	6455021	1995529	Certain	101	nd	7/11/1975	1.91	1.98	1.59	1.66	
PO Box 588	416500	6455140	2002124	Certain	110	110	5/18/1994	2.07	2.14	1.85	1.92	
3318 S Walnut Ave	304059	6455142	1994465	Approx	160	140	6/16/1989	1.79	1.86	1.49	1.56	
	275702	6455213	1991289	Certain	290	270	5/17/1988	1.51	1.57	1.19	1.25	

**Table 3. Potential Drawdown in Existing Private Domestic Wells in Area
(Feet)**

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	
3730 N Walnut Ave	326823	6455229	2016307	Certain	120	100	7/28/1989	0.86	0.92	0.95	1.00	1.00	
4219 N Walnut Ave	340925	6455259	1995061	Certain	175	155	4/7/1990	1.82	1.89	1.53	1.59	1.59	
1424 Circus Ct	475338	6455320	2007673	Certain	330	nd	5/15/1996	1.60	1.67	1.61	1.68	1.68	
2820 Brevard Ln	86188	6455386	2012423	Certain	190	190	7/10/1979	1.14	1.20	1.20	1.26	1.26	
2500 Hampton Rd	340918	6455575	2010317	Certain	275	255	3/30/1990	1.32	1.38	1.37	1.44	1.44	
1465 Ellerd RD	326964	6455716	1996985	Certain	232	232	1/12/1990	1.89	1.96	1.60	1.67	1.67	
1518 Bradbury Rd	22727	6455728	1986020	Certain	140	120	5/9/1977	1.01	1.06	0.81	0.86	0.86	
5724 N Walnut Rd	22675	6455906	2021039	Certain	140	130	2/18/1977	0.00	0.00	0.00	0.00	0.00	
PO Box 275	197503	6456019	1980416	Approx	245	245	11/16/1985	0.00	0.00	0.00	0.00	0.00	
1200 W Tuolumne Rd	89363	6456038	2010803	Certain	142	142	10/6/1973	1.22	1.28	1.28	1.34	1.34	
4641 Crowell Rd	370304	6456089	2018875	Certain	360	340	6/7/1990	0.00	0.00	0.72	0.77	0.77	
3513 S Soderquist Rd	226557	6456175	1991375	Certain	77	77	11/6/1981	1.41	1.47	1.14	1.20	1.20	
4012 S Soderquist Rd	150833	6456320	1988932	Certain	245	nd	7/25/1985	1.17	1.23	0.97	1.03	1.03	
3931 S Soderquist Rd	498375	6456343	1989723	Certain	240	240	2/2/1993	1.23	1.29	1.02	1.08	1.08	
3336 S Soderquist Rd	110633	6456514	1991090	Certain	55	45	6/17/1975	1.35	1.41	1.10	1.16	1.16	
3912 S Soderquist Rd	326843	6456521	1988941	Certain	230	230	8/17/1989	1.16	1.22	0.96	1.02	1.02	
4124 S Soderquist Rd	495290	6456531	1988238	Certain	240	240	nd	3/9/1994	1.11	1.17	0.92	0.97	0.97
3290632	6457098	1990791	Certain	180	180	160	3/8/1989	1.32	1.38	1.08	1.14	1.14	
287260	6456541	1990791	Certain	205	205	185	12/20/1988	1.15	1.21	1.19	1.25	1.25	
290690	6456595	2011229	Certain	175	175	155	8/27/1987	1.78	1.85	1.55	1.62	1.62	
168885	6456616	1998423	Certain	270	270	250	1/15/1988	1.05	1.11	0.99	1.15	1.15	
580300	6456750	1999545	Certain	240	240	nd	5/5/1995	1.78	1.85	1.57	1.64	1.64	
913 W Greenway Ave	290632	6457098	1993587	Certain	175	175	155	10/14/1988	1.48	1.55	1.19	1.25	1.25
Oslo Rd	76606	6457163	1980416	Approx	96	96	12/19/1972	0.00	0.00	0.00	0.00	0.00	
805 W Minnesota Ave	168960	6457250	2012125	Certain	270	270	12/3/1977	1.28	1.34	1.06	1.11	1.11	
PO Box 432	46478	6457358	1991371	Approx	100	100	nd	5/21/1969	1.60	1.67	1.49	1.56	1.56
752 Julia	21035	6457410	2003853	Approx	110	nd	7/9/1975	1.62	1.69	1.47	1.54	1.54	
839 W Main St	146266	6457698	2001997	Certain	145	145	nd	2/11/1971	0.00	0.00	0.00	0.00	0.00
5532 Copeland Ln	22994	6457727	1994094	Approx	90	90	7/11/1977	1.44	1.50	1.17	1.23	1.23	
565 Santa Clara	326931	6457727	1994094	Approx	245	245	nd	11/10/1989	1.44	1.50	1.17	1.23	1.23
Livemore	29343	6457759	1999422	Approx	70	70	6/28/1978	1.63	1.70	1.43	1.49	1.49	
20426 W Johnson Ave	66756	6457898	1980450	Certain	nd	71	61	2/11/1971	0.00	0.00	0.00	0.00	0.00
671 Park St	96093	6457923	2004323	Certain	117	117	97	2/25/1981	1.51	1.57	1.41	1.47	1.47
512 Montana Ave	822557	6458086	1998292	Certain	205	285	nd	6/24/1999	1.57	1.64	1.34	1.41	1.41
809 N Broadway	252886	6458090	2004933	Certain	245	225	1/11/1988	1.45	1.52	1.37	1.43	1.43	
2041 Julie Ave	129507	6458170	2010483	Certain	140	140	100	6/21/1978	1.09	1.15	1.11	1.17	1.17

**Table 3. Potential Drawdown in Existing Private Domestic Wells in Area
(Feet)**

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	
2141 Julie Ave Modesto	495108	6458172	2010229	Certain	255	nd	3/25/1993	1.11	1.17	1.12	1.18	0.00	
520 Pedros Rd	92530	64584400	2020777	Approx	102	82	5/8/1974	0.00	0.00	0.00	0.00	0.00	
471 Clark St	86940	6458446	2008725	Certain	85	65	2/15/1974	1.17	1.22	1.16	1.22	1.22	
528 E Main St	191200	6458615	1998569	Certain	170	150	7/23/1986	1.50	1.56	1.28	1.34	1.34	
2141 Georgia Wy	85104	6458652	2002117	Certain	nd	50	5/26/1973	1.48	1.55	1.33	1.39	1.39	
607 W Clausen Rd	548989	6458677	2010080	Certain	151	28	8/8/1995	1.08	1.14	1.09	1.15	1.15	
647 Columbian	64861	6458679	1998615	Certain	nd	255	4/2/1987	1.06	1.12	0.87	0.92	0.92	
547 Pedros Rd	89364	6458694	2001692	Certain	65	55	10/8/1973	1.49	1.55	1.33	1.39	1.39	
547 Pedros Rd	96261	6458700	2008687	Certain	157	137	7/27/1980	1.15	1.21	1.14	1.20	1.20	
147227	6458717	2008687	2008687	Certain	113	93	8/30/1978	1.15	1.21	1.14	1.20	1.20	
217 Coren St	86910	6458738	1992338	Approx	85	65	11/4/1973	1.19	1.25	1.01	1.07	1.07	
632 W Greenway	468098	6458886	1992824	Certain	160	nd	12/7/1995	1.20	1.26	1.02	1.08	1.08	
632 W Greenway	244079	6458886	1992824	Certain	265	nd	5/21/1984	1.20	1.26	1.02	1.08	1.08	
528 E Main St	85102	6458977	2001953	Certain	80	80	60	5/24/1973	1.44	1.50	1.29	1.35	1.35
509 Vermont Ave	219457	6459060	2000186	Certain	120	120	6/19/1984	1.45	1.51	1.26	1.32	1.32	
304 W Minnesota Ave	128930	6459088	2011495	Certain	126	126	114	5/28/1978	0.97	1.03	0.99	1.05	1.05
448 W Clausen Rd	576605	6459120	1998612	Certain	220	220	nd	12/16/1996	1.03	1.08	0.84	0.89	0.89
232 20th Century Blvd	128969	6459128	2007724	Certain	240	140	100	11/6/1978	1.16	1.22	1.14	1.20	1.20
565 Santa Clara	76536	6459174	1986094	Approx	64	64	54	11/30/1972	0.82	0.87	0.00	0.00	0.00
378 W Syracuse	325303	6459208	2005155	Certain	190	190	170	10/17/1989	1.29	1.35	1.20	1.26	1.26
430 Columbia	158179	6459324	2001593	Certain	nd	95	70	10/28/1976	1.40	1.46	1.23	1.29	1.29
30272 E Orange Ave	146253	6459398	1997570	Approx	100	100	88	7/8/1975	1.37	1.43	1.16	1.22	1.22
221 W Minnesota Ave	145640	6459414	2011509	Certain	60	60	35	1/26/1978	0.95	1.01	0.97	1.02	1.02
733 N Broadway	326887	6459717	2003251	Certain	85	85	75	9/29/1989	1.30	1.36	1.18	1.24	1.24
20751 W Fowler Rd	289863	6459718	1983067	Certain	115	115	95	1/6/1989	0.00	0.00	0.00	0.00	0.00
855 Geer Rd	96742	6460109	2005995	Certain	100	100	80	5/6/1980	1.15	1.21	1.11	1.16	1.16
855 Geer Rd	147243	6460109	2005995	Certain	145	145	133	10/5/1978	1.15	1.21	1.11	1.16	1.16
1445 Lander Ave	168804	6460109	2006008	Certain	285	285	265	5/21/1987	1.15	1.21	1.11	1.16	1.16
9725 Lander Ave	409128	6460109	1998151	Certain	272	272	nd	10/13/1992	1.28	1.34	1.11	1.17	1.17
9725 Lander Ave	29334	6460111	1978994	Certain	98	nd	nd	12/5/1969	0.00	0.00	0.00	0.00	0.00
2620 Lander Ave	576604	6460113	1994179	Certain	220	220	nd	12/3/1996	1.16	1.21	0.99	1.04	1.04
2609 Lander Ave	96716	6460113	1994217	Certain	154	154	134	4/11/1980	1.16	1.22	0.99	1.05	1.05
3007 Lander Ave	197584	6460120	1992917	Certain	180	180	160	6/9/1986	1.11	1.17	0.93	0.99	0.99
3125 Lander Ave	370321	6460125	1992547	Certain	225	225	205	6/29/1990	1.09	1.15	0.92	0.97	0.97

**Table 3. Potential Drawdown in Existing Private Domestic Wells in Area
(Feet)**

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with South Washington Well	
20167 W Fowler Rd	326913	6460133	1983108	Certain	130	120	10/20/1989	0.00	0.00	0.00	0.00	
10117 Lander Ave	247378	6460135	1980587	Certain	116	76	7/28/1982	0.00	0.00	0.00	0.00	
4000 Lander Ave	148628	6460141	1989587	Certain	70	60	7/16/1976	0.95	1.01	0.77	0.82	
4136 Lander Ave	67729	6460146	1989127	Certain	100	80	4/4/1971	0.93	0.98	0.74	0.79	
4200 Lander Ave	287266	6460155	1988879	Certain	215	195	3/9/1989	0.92	0.97	0.73	0.78	
10218 Lander Ave	64837	6460161	1981252	Certain	285	265	3/25/1987	0.00	0.00	0.00	0.00	
10218 Lander Ave	498381	6460161	1981252	Certain	200	200	2/4/1993	0.00	0.00	0.00	0.00	
10218 Lander Ave	498204	6460161	1981252	Certain	210	210	5/18/1992	0.00	0.00	0.00	0.00	
10218 Lander Ave	475360	6460161	1981252	Certain	210	210	nd	6/24/1996	0.00	0.00	0.00	
10218 N Lander Ave	145508	6460161	1981252	Certain	154	144	2/11/1976	0.00	0.00	0.00	0.00	
10430 Lander Ave	247096	6460214	1982624	Certain	195	195	3/20/1984	0.00	0.00	0.00	0.00	
737 E Monte Vista Ave	251120	6460255	2012476	Certain	122	122	102	5/27/1987	0.84	0.89	0.86	
2700 Lander Ave	187161	6460339	1992922	Certain	210	210	9/18/1986	1.09	1.15	0.92	0.97	
30 W Minnesota Ave	46474	6460408	2010714	Certain	156	138	11/26/1977	0.92	0.98	0.93	0.98	
2080 Temple Ave	63884	6460412	2010186	Certain	98	88	2/15/1973	0.95	1.01	0.95	1.00	
2125 Gulf Rd	22939	6460413	1996378	Certain	216	216	201	3/20/1977	1.19	1.25	1.04	
605 Lander Ave	21036	6460442	1999960	Certain	nd	60	50	5/21/1969	1.25	1.31	1.11	
605 Lander Ave	29333	6460442	1999974	Certain	71	nd	nd	12/4/1969	1.25	1.31	1.11	
605 Lander Ave	21040	6460476	2001170	Certain	nd	nd	nd	12/25/1969	1.24	1.30	1.12	
605 Lander Ave	66714	6460480	2001149	Certain	60	60	50	9/7/1970	1.24	1.30	1.12	
3424 Geer Rd	250471	6460592	2013464	Certain	235	235	215	6/7/1988	0.76	0.81	0.78	
447 E Center St	326807	6460597	2004122	Certain	100	100	80	7/17/1989	1.17	1.23	1.10	
2618 Geer Rd	250470	6460727	2010797	Certain	225	225	205	6/6/1988	0.90	0.95	0.90	
225 Rutgers Ave	89340	6460740	2010606	Certain	nd	76	66	9/25/1973	0.91	0.96	0.91	
8337 9th St	46463	6460765	1998814	Certain	126	126	100	10/28/1977	1.20	1.26	1.07	
388 N Golden State Blvd	40433	6460765	2003370	Certain	142	142	132	10/19/1976	1.16	1.22	1.08	
2000 Loyola Wy	83937	6460857	2009895	Certain	97	97	89	7/17/1973	0.93	0.99	0.92	
900 N Palm St	89968	6461037	2009631	Certain	103	103	93	2/22/1974	0.93	0.99	0.92	
5018 N Geer Rd	525362	6461043	2018197	Certain	290	290	nd	5/3/1997	0.00	0.00	0.00	
8337 8th ST	576638	6461074	1999056	Certain	160	160	nd	3/12/1997	1.17	1.23	1.04	
900 N Palm St	488671	6461089	2005285	Certain	400	405	nd	2/20/1992	1.09	1.15	1.04	
488675	6461093	2005166	Certain	370	375	nd	2/3/1992	1.10	1.16	1.04	1.09	
335 North Ave	249232	6461133	2009273	Certain	215	215	195	2/16/1984	0.94	1.00	0.93	0.98
333 E Canal Dr	99466	6461139	2005821	Certain	105	105	95	10/28/1974	1.07	1.13	1.02	1.08
333 E Canal Dr	149503	6461139	2005821	Certain	88	84	nd	1/12/1976	1.07	1.13	1.02	1.08

Table 3. Potential Drawdown in Existing Private Domestic Wells in Area (Feet)

**Table 3. Potential Drawdown in Existing Private Domestic Wells in Area
(Feet)**

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with WEC Site Well
565 Glen Haven Ct	150885	6462405	2007557	Certain	302	282	10/11/1985	0.91	0.97	0.87	0.93
600 Glenwood Ave	251217	6462411	1995439	Certain	184	164	7/13/1987	1.00	1.06	0.85	0.90
350 Strathaven Ct	481197	6462411	2008037	Certain	212	20	7/3/1991	0.89	0.95	0.86	0.91
1940 Rohrer Rd	98321	6462433	2008569	Certain	100	80	6/22/1979	0.87	0.92	0.84	0.90
POBox 457	70496	6462461	1982986	Approx	60	50	2/28/1972	0.00	0.00	0.00	0.00
1224 E 5th	70494	6462493	2002981	Approx	67	nd	2/26/1972	1.02	1.08	0.94	0.99
501 Golden State Blvd	77036	6462580	2001426	Certain	217	193	7/15/1981	1.03	1.09	0.93	0.99
35 Shawnee Ct	326987	6462649	2006953	Approx	310	290	2/20/1990	0.91	0.97	0.87	0.92
PO Box 2106	111934	6462728	2015249	Approx	140	130	11/25/1975	0.00	0.00	0.00	0.00
125 G ST	359703	6462757	2009663	Certain	161	155	11/7/1990	1.02	1.08	0.91	0.97
1663 Meadow Ln	144461	6462790	1980319	Approx	70	70	1/12/1978	0.00	0.00	0.00	0.00
1645 Amberwood Dr	498348	6462828	1996373	Certain	303	303	11/17/1992	0.98	1.04	0.84	0.89
875 E Canal Dr	289680	6462833	2005825	Certain	180	180	1/19/1989	0.93	0.99	0.88	0.93
nd	187124	6462854	1995392	Approx	310	290	7/25/1986	0.96	1.02	0.81	0.86
400 E Clausen Rd	498340	6462863	1991208	Certain	85	85	11/11/1992	0.82	0.88	0.00	0.00
PO Box 670	24264	6462873	2014211	Approx	210	nd	2/3/1969	0.00	0.00	0.00	0.00
Turlock	111997	6462880	1983222	Approx	80	80	7/4/1975	0.00	0.00	0.00	0.00
S83 S Center St	246974	6462964	2001262	Certain	187	187	4/26/1982	1.00	1.06	0.90	0.95
124 H St	197546	6462965	2000748	Certain	200	200	3/21/1986	1.00	1.06	0.90	0.95
4 Carter Lakeway	22606	6462987	1988733	Approx	60	60	2/21/1977	0.70	0.75	0.00	0.00
PO Box 1805	476370	6462987	1988733	Approx	265	265	7/2/1987	0.70	0.75	0.00	0.00
1749 N Olive Ave	252952	6462994	2007989	Certain	173	173	4/11/1988	0.85	0.90	0.81	0.86
PO Box 580	187122	6463004	1999920	Approx	220	220	7/18/1986	1.00	1.06	0.89	0.94
1749 N Olive Ave	197599	6463021	2007989	Certain	210	210	6/27/1986	0.85	0.90	0.81	0.86
19610 Bradbury Rd	154072	6463026	1986145	Certain	113	113	10/3/1984	0.00	0.00	0.00	0.00
Turlock	86985	6463047	1999388	Approx	104	104	9/17/1973	1.00	1.05	0.88	0.93
Turlock	21206	6463047	1999388	Approx	156	156	1/11/1977	1.00	1.05	0.88	0.93
1019 E Linwood Ave	125376	6463057	1997628	Certain	82	82	6/7/1975	0.98	1.04	0.85	0.90
2189 W Crane Rd	29316	6463096	2003915	Approx	192	142	1/11/1978	0.96	1.01	0.88	0.93
Turlock	52241	6463097	2010034	Approx	113	110	9/3/1970	0.76	0.81	0.74	0.79
Turlock	48939	6463097	2010034	Approx	182	182	2/7/1978	0.76	0.81	0.74	0.79
Turlock	29558	6463097	2010034	Approx	nd	nd	11/28/1967	0.76	0.81	0.74	0.79
132 I St	149811	6463130	2000518	Certain	140	140	1/26/1975	0.99	1.05	0.88	0.93
607 W Clausen Rd	96089	6463138	1988553	Certain	236	236	9/22/1980	0.68	0.73	0.00	0.00
1233 5th St	96254	6463156	1998475	Certain	150	150	7/8/1980	0.98	1.04	0.85	0.91

**Table 3. Potential Drawdown in Existing Private Domestic Wells in Area
(Feet)**

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	
1233 5th St	29341	6463156	1998475	Certain	99	nd	1/2/1/1969	0.98	1.04	0.85	0.91	0.91	
3501 Colorado Ave	495262	6463183	2014513	Certain	80	80	1/21/1994	0.00	0.00	0.00	0.00	0.00	
813 Runyon Dr	125297	6463211	2007853	Certain	80	80	7/23/1975	0.84	0.89	0.80	0.85	0.85	
10455 N Lana Ln	128964	6463226	1981268	Certain	162	162	11/29/1978	0.00	0.00	0.00	0.00	0.00	
837 E Glenwood Ln	76007	6463231	1995453	Certain	165	165	7/2/1981	0.93	0.98	0.78	0.83	0.83	
PO Box 304	66764	6463243	1999746	Approx	110	nd	2/20/1971	0.98	1.04	0.86	0.92	0.92	
19425 W Clausen Rd	501532	6463262	1988635	Certain	156	70	2/12/1993	0.68	0.73	0.00	0.00	0.00	
PO Box 2521	168873	6463264	1995401	Approx	240	240	8/13/1987	0.92	0.98	0.77	0.83	0.83	
Stevenson	29341	6463269	1999340	Approx	60	60	7/6/1978	0.98	1.04	0.85	0.91	0.91	
1018 S First St	168984	6463278	2000555	Certain	230	230	3/11/1988	0.98	1.03	0.87	0.92	0.92	
1263 Pioneer Ave	111886	6463362	2007362	Certain	80	80	9/24/1975	0.84	0.89	0.80	0.85	0.85	
1263 Pioneer Ave	111887	6463362	2007362	Certain	80	80	9/25/1975	0.84	0.89	0.80	0.85	0.85	
1076 Pioneer Ave	66718	6463370	2006766	Certain	154	nd	9/13/1970	0.86	0.91	0.81	0.86	0.86	
PO Box 368	83106	6463451	1982982	Approx	125	125	10/5	0.00	0.00	0.00	0.00	0.00	
3001 N Inys	96279	6463577	2009988	Approx	154	142	9/10/1980	0.72	0.77	0.70	0.75	0.75	
911 Tornell Ave	125854	6463584	2010534	Certain	72	72	5/2	0.70	0.75	0.68	0.73	0.73	
936 W Monte Vista Ave	54349	6463592	2012760	Certain	100	100	80	10/31/1979	0.00	0.00	0.00	0.00	0.00
4850 Bridgeport Dr	507735	6463670	2012299	Approx	985	nd	nd	9/23/1996	0.00	0.00	0.00	0.00	0.00
Turlock	70488	6463710	2020751	Approx	60	60	50	3/2/1972	0.00	0.00	0.00	0.00	0.00
912 Glenwood Ave	326915	6463715	1995507	Certain	70	70	60	10/24/1989	0.89	0.94	0.74	0.79	0.79
Barnhart Rd	76605	6463722	2020613	Approx	95	nd	nd	12/18/1972	0.00	0.00	0.00	0.00	0.00
1113 E Glenwood Ave	243976	6463723	1996302	Certain	75	75	55	5/23/1983	0.90	0.96	0.76	0.81	0.81
1019 E Linwood Ave	246496	6463742	1996623	Certain	97	97	77	2/3/1983	0.91	0.96	0.77	0.82	0.82
1019 E Linwood Ave	22749	6463745	1996610	Certain	110	110	91	6/17/1977	0.91	0.96	0.76	0.82	0.82
1020 E Linwood Ave	111222	6463769	1996608	Certain	57	57	48	3/11/1975	0.91	0.96	0.76	0.81	0.81
1240 S First St	547564	6463794	1999692	Certain	305	305	nd	10/6/1994	0.93	0.99	0.81	0.87	0.87
821 Pioneer Dr	76553	6463849	2005177	Certain	100	100	80	4/4/1973	0.86	0.92	0.80	0.85	0.85
913 E Warner Ave	158177	6463964	2019286	Certain	nd	91	76	10/23/1976	0.00	0.00	0.00	0.00	0.00
PO Box 1998	219472	6463967	1995374	Approx	215	215	155	7/19/1984	0.86	0.92	0.71	0.76	0.76
19478 W Bradbury Rd	168913	6463979	1986197	Certain	232	232	212	10/22/1987	0.00	0.00	0.00	0.00	0.00
901 S Minaret Ave	150842	6464325	2000534	Certain	182	nd	nd	8/2/1985	0.88	0.94	0.77	0.83	0.83
2150 Colorado Ave	22750	6464347	2008975	Certain	109	109	89	6/18/1977	0.70	0.75	0.67	0.72	0.72
1360 E Harding Rd	31055	6464356	1991249	Certain	180	180	160	1/14/1988	0.71	0.76	0.00	0.00	0.00
1412 S 1st St	250600	6464358	1999130	Certain	350	350	310	9/20/1988	0.88	0.93	0.76	0.81	0.81
1412 S 1st St	110595	6464358	1999130	Certain	42	42	27	4/9/1975	0.88	0.93	0.76	0.81	0.81

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(Feet)**

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with WEC Site Well
1400 Cahill Ave	129528	6464486	2003681	Certain	92	72	8/17/1978	0.84	0.89	0.76	0.81
1266 E Linwood Ave	149833	6464487	1996637	Certain	60	50	1/12/1976	0.84	0.90	0.70	0.75
3237 Colorado Ave	334927	6464554	2012939	Certain	130	110	3/19/1990	0.00	0.00	0.00	0.00
1660 Carlton Dr	344915	6464665	2009459	Certain	145	125	6/12/1990	0.00	0.00	0.00	0.00
1100 Sierra Dr	66713	6464713	2006629	Certain	120	nd	9/5/1970	0.75	0.80	0.70	0.75
Denis Wy	86989	6464735	1985342	Approx	76	56	9/29/1973	0.00	0.00	0.00	0.00
4718 Colorado Ave	190849	6464736	2016727	Certain	132	112	5/2/1986	0.00	0.00	0.00	0.00
868 Alpha St	92544	6464749	2000950	Certain	105	85	9/3/1974	0.85	0.90	0.74	0.79
Denis Wy	92531	6464911	1985342	Approx	80	60	5/9/1974	0.00	0.00	0.00	0.00
2020 Belhaven Pl	129791	6464921	2009933	Certain	110	90	5/30/1978	0.00	0.00	0.00	0.00
1405 E Linwood Ave	247472	6464972	1997642	Certain	242	nd	12/10/1982	0.81	0.87	0.68	0.73
2181 Carlton Dr	145688	6465013	2009105	Certain	150	130	3/23/1978	0.00	0.00	0.00	0.00
2621 Greeley Ct	303974	6465043	2010646	Certain	290	290	4/15/1989	0.00	0.00	0.00	0.00
10444 Lana Ln	251247	6465052	1982705	Certain	225	205	9/17/1987	0.00	0.00	0.00	0.00
19300 Bradbury Rd	226987	6465058	1985884	Certain	170	155	10/20/1981	0.00	0.00	0.00	0.00
10443 Lana Ln	498363	6465059	1982696	Certain	250	250	12/30/1992	0.00	0.00	0.00	0.00
10440 Lana Ln	704866	6465066	1982687	Certain	252	252	7/29/1998	0.00	0.00	0.00	0.00
10439 Lana Ln	247487	6465072	1982677	Certain	245	245	8/2/1988	0.00	0.00	0.00	0.00
19077 Fowler Rd	252820	6465086	1983003	Certain	220	220	9/29/1987	0.00	0.00	0.00	0.00
10410 Lana Ln	488287	6465165	1982546	Certain	260	260	3/2/1992	0.00	0.00	0.00	0.00
19099 Denis Wy	129539	6465214	1985330	Certain	141	141	10/1/1978	0.00	0.00	0.00	0.00
19099 Denis Wy	148604	6465214	1985330	Certain	58	58	nd	7/30/1976	0.00	0.00	0.00
19099 Denis Wy	149354	6465214	1985330	Certain	147	147	nd	2/19/1976	0.00	0.00	0.00
1113 N Berkeley Ave	250583	6465301	2006730	Certain	130	130	9/1/1988	0.70	0.75	0.00	0.00
1441 E Monte Vista Ave	532888	6465358	2012737	Certain	160	160	nd	10/31/1997	0.00	0.00	0.00
1441 E Monte Vista Ave	582962	6465373	2012722	Certain	177	177	nd	2/21/1994	0.00	0.00	0.00
19055 W Denis Wy	219670	6465379	1985325	Certain	238	258	7/24/1984	0.00	0.00	0.00	0.00
2618 Golf Rd	576618	6465395	1994307	Certain	220	220	nd	2/6/1997	0.72	0.77	0.00
2530 Golf Rd	325357	6465395	1994584	Certain	270	270	255	2/20/1990	0.72	0.78	0.00
2230 Golf Rd	246437	6465397	1995525	Certain	238	238	210	8/23/1983	0.74	0.80	0.00
1719 Golf Rd	66768	6465403	1997240	Certain	63	63	nd	2/25/1971	0.77	0.82	0.00
1624 Golf Rd	346703	6465404	1997539	Certain	262	262	222	5/21/1990	0.77	0.83	0.00
3024 Golf Rd	172982	6465410	1992879	Certain	175	175	165	10/26/1987	0.68	0.73	0.00
3331 Golf Rd	495143	6465411	1991573	Certain	225	225	nd	5/12/1993	0.00	0.00	0.00
1526 Sycamore St	98339	6465416	2002922	Certain	84	84	74	10/4/1974	0.77	0.82	0.68

**Table 3. Potential Drawdown in Existing Private Domestic Wells in Area
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Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with WEC Site Well
2000 Belhaven Pl	145605	6465436	2008661	Certain	155	135	1/11/1978	0.00	0.00	0.00	0.00
3400 Golf Rd	576769	6465454	1991181	Certain	225	nd	10/2/1996	0.00	0.00	0.00	0.00
19016 Dennis Wy	65011	6465521	1985321	Certain	240	200	1/12/1986	0.00	0.00	0.00	0.00
10453 Golf Link Rd	158186	6465523	1982685	Certain	nd	152	132	11/11/1976	0.00	0.00	0.00
10329 N Golf Link Rd	290606	6465531	1987976	Certain	240	220	9/27/1988	0.00	0.00	0.00	0.00
10435 Golf Rd	252819	6465539	1987971	Certain	225	205	9/29/1987	0.00	0.00	0.00	0.00
10532 N Golf Link Rd	173112	6465545	1987488	Certain	250	230	4/23/1985	0.00	0.00	0.00	0.00
9312 N Golf Rd	247463	6465591	1989117	Certain	nd	nd	7/1/1983	0.00	0.00	0.00	0.00
10589 Golf Link Rd	433867	6465604	1985119	Certain	245	245	nd	9/25/1991	0.00	0.00	0.00
11007 Golf Rd	144459	6465604	1986863	Certain	111	91	1/18/1978	0.00	0.00	0.00	0.00
10619 Golf Link Rd	252881	6465608	1985240	Certain	270	270	12/31/1987	0.00	0.00	0.00	0.00
10661 Golf Link Rd	173141	6465613	1985624	Certain	390	390	270	6/7/1985	0.00	0.00	0.00
nd	667433	6465648	1989772	Approx	100	100	90	5/8/1971	0.00	0.00	0.00
516973	6465708	1995050	Approx	228	232	nd	10/18/1997	0.71	0.76	0.00	0.00
3823 N Hwy 59	22621	6465712	1988799	Certain	107	107	80	7/25/1977	0.00	0.00	0.00
9596 Golf Rd	66742	6465717	1993770	Approx	nd	60	50	5/7/1971	0.68	0.73	0.00
Winton	129529	6465778	1986296	Certain	185	185	8/18/1978	0.00	0.00	0.00	0.00
11751 N Golf Link Rd	23336	6465797	2011277	Approx	140	140	120	3/22/1977	0.00	0.00	0.00
23.00 Block	580258	6465804	1986509	Certain	300	300	nd	2/22/1995	0.00	0.00	0.00
11351 N Golf Link Rd	96906	6465809	1986616	Certain	175	175	155	5/22/1980	0.00	0.00	0.00
11318 Golf Rd	111857	6465812	1998766	Certain	52	52	42	9/9/1975	0.75	0.80	0.00
948 S Berkeley Ave	29342	6465815	1998506	Certain	198	nd	nd	12/7/1969	0.75	0.80	0.00
948 S Berkeley Ave	99774	6465822	2011296	Certain	206	206	193	7/2/1974	0.00	0.00	0.00
2813 Berkeley Ave	26581	6465823	1995582	Certain	81	81	61	7/18/1977	0.71	0.76	0.00
5901 Golf Link Rd	29342	6465824	1998631	Certain	198	nd	nd	12/7/1969	0.75	0.80	0.00
948 S Berkeley Ave	85838	6465826	2009490	Certain	325	nd	nd	6/18/1973	0.00	0.00	0.00
2219 N Berkeley Ave	147218	6465856	2008900	Certain	138	138	128	8/11/1978	0.00	0.00	0.00
2901 N Berkeley Ave	247071	6465886	2009825	Certain	140	140	120	1/31/1983	0.00	0.00	0.00
1613 E Tuolumne Ave	250574	6465893	1987749	Certain	250	250	230	8/31/1988	0.00	0.00	0.00
10619 Golf Rd	197569	6465915	2009843	Certain	218	218	198	5/8/1986	0.00	0.00	0.00
1631 E Tuolumne	22903	6465966	1985889	Certain	65	65	55	2/13/1977	0.00	0.00	0.00
19199 Bradbury Rd	157631	6465997	1985903	Certain	95	95	85	6/1/1976	0.00	0.00	0.00
19141 Bradbury Rd	192230	6465998	1985891	Certain	225	223	195	7/18/1986	0.00	0.00	0.00
1685 El Capitan Wy	146817	6466001	2005504	Certain	143	143	128	8/1/1975	0.67	0.72	0.00
1801 East Ave	129518	6466071	2002922	Certain	120	120	80	7/12/1978	0.71	0.76	0.00

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16 Soderstrom Ln	129763	6466146	2002889	Certain	155	135	4/4/1978	0.71	0.76	0.00	0.00
1719 E Monte Vista Ave	65054	6466175	2012460	Certain	285	265	3/9/1987	0.00	0.00	0.00	0.00
1900 Paulson Rd	22431	6466409	1997399	Certain	160	160	2/9/1977	0.69	0.74	0.00	0.00
24 Soderstrom Ln	814870	6466490	2001839	Certain	270	nd	3/23/1999	0.69	0.74	0.00	0.00
18851 E Clausen Rd	246972	6466657	1988736	Certain	300	240	5/3/1982	0.00	0.00	0.00	0.00
2000 Brier Rd	148621	6466745	2000295	Certain	89	74	9/17/1976	0.67	0.72	0.00	0.00
2261 Golden State Blvd	76017	6466745	1995863	Certain	300	260	6/10/1981	0.00	0.00	0.00	0.00

nd indicates data not available from well driller's report

Table 4. Potential Drawdown in Existing Private Irrigation Wells in Area (Feet)

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Bottom of Lowest Screen	Depth to Top of Highest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with South Washington Well
1685 El Capitan Wy	33805	6426035.18	1989138.08	Approximate	250	235	135	5/27/1977	0.75	0.81	0.75	0.80
813 S Moffett Rd	325323	6426060.41	1999690.51	Approximate	230	225	135	11/22/1989	0.68	0.73	0.79	0.84
547 Pedros Rd	24809	6426060.41	1999690.51	Approximate	240	240	90	5/25/1977	0.71	0.77	0.78	0.84
8505 Central Ave	71101	6426060.67	2010291.64	Approximate	nd	52	nd	3/21/1972	0.84	0.90	1.01	1.07
Bradbury Rd	26158	6431242.08	1983676.24	Approximate	217	217	30	7/3/1977	0.73	0.78	0.68	0.73
6006 S Central Ave	47939	6431242.08	1983676.24	Approximate	330	330	90	8/16/1977	0.79	0.85	0.71	0.76
1431 N Central Ave	250438	6431279.08	2010257.92	Approximate	365	365	100	4/23/1988	0.90	0.95	1.06	1.12
118 N Blaker Rd	290610	6431295.67	2004942.97	Approximate	160	160	120	9/28/1988	1.58	1.64	1.78	1.85
731 S Central Ave	325356	6431306.86	1999628.00	Approximate	125	125	115	2/16/1990	1.04	1.10	1.15	1.20
3431 S Moffett Rd	374491	6431307.61	1989086.56	Approximate	200	200	120	4/5/1991	1.05	1.10	1.03	1.09
5213 W Main St	21314	6431326.32	1994371.38	Approximate	nd	158	132	12/22/1976	1.11	1.16	1.10	1.16
2866 Robert Rd	54410	6431441.22	2015595.78	Approximate	273	270	140	10/18/1979	0.86	0.92	1.06	1.12
5202 S Faith Home Rd	495263	6436577.98	1989034.86	Approximate	65	65	nd	1/19/1994	1.00	1.05	0.90	0.95
4413 Prairie Flower Rd	47999	6436577.98	1989034.86	Approximate	360	360	90	7/26/1977	1.21	1.27	1.12	1.18
880 S Kirby Rd	433988	6436615.08	1994344.07	Approximate	nd	290	nd	4/28/1992	2.60	2.68	2.55	2.62
313 N Prairie Flower Rd	26589	6436615.08	1994344.07	Approximate	157	157	97	7/1/1977	1.80	1.87	2.25	2.32
3107 S Prairie Flower Rd	252984	6436615.08	1994344.07	Approximate	270	270	150	5/11/1988	1.67	1.74	1.60	1.67
3107 S Prairie Flower Rd	24670	6436615.08	1994344.07	Approximate	270	270	50	5/5/1977	1.64	1.71	1.60	1.67
3107 S Prairie Flower Rd	24674	6436615.08	1994344.07	Approximate	280	280	nd	5/14/1977	1.45	1.51	1.40	1.46
Ceres	21328	6436674.35	2010178.90	Approximate	nd	100	80	1/17/1977	1.15	1.21	1.45	1.51
936 W Monte Vista Ave	24605	6436798.22	2015501.43	Approximate	360	360	90	6/16/1977	1.04	1.10	1.28	1.34
6631 S Central Ave	76870	6436798.22	2015501.43	Approximate	410	410	128	5/13/1981	1.15	1.21	1.45	1.52
Hilmar	22988	6437175.66	2020889.82	Approximate	150	nd	nd	5/1/1977	0.68	0.73	0.88	0.93
1105 S Faith Home Rd	66746	6439499.33	1999330.72	Approximate	nd	nd	nd	5/6/1971	2.97	3.05	3.16	3.24
5672 Almaden Express	125355	6439564.77	2006090.83	Approximate	165	165	45	1/14/1975	2.30	2.37	2.91	2.99
9243 Merced Ave	46498	6441646.14	1978094.04	Approximate	244	244	184	1/4/1977	0.68	0.73	0.00	0.00
7613 W Main St	87162	6441773.53	1983533.42	Approximate	155	155	35	3/28/1974	1.07	1.13	0.94	0.99
1419 N Commons Rd	433901	6441813.07	2006615.78	Approximate	395	395	nd	10/31/1991	2.52	2.59	3.27	3.35
2801 S Prairie Flower Rd	252997	6441883.33	1988980.48	Approximate	380	380	220	5/24/1988	1.51	1.57	1.40	1.46
8413 Faith Home Rd	569169	6442033.05	2010121.21	Approximate	143	143	nd	8/5/1994	1.82	1.89	2.33	2.40
4112 N Walnut Ave	24663	6442033.05	2010121.21	Approximate	332	332	140	4/16/1977	1.75	1.82	2.21	2.28
8413 Faith Home Rd	33834	6442033.05	2010121.21	Approximate	373	360	135	7/22/1977	1.45	1.52	1.78	1.85
1852 River Rd	75762	6442107.43	2015490.70	Approximate	78	nd	nd	6/25/1971	1.45	1.52	1.77	1.84
6955 Faith Home Rd	433977	6442107.43	2015490.70	Approximate	140	140	nd	4/13/1992	0.90	0.96	1.10	1.15
5700 Zeering Rd	569318	6442107.43	2015490.70	Approximate	348	348	nd	4/18/1994	1.18	1.24	1.46	1.53

Table 4. Potential Drawdown in Existing Private Irrigation Wells in Area
(Feet)

Table 4. Potential Drawdown in Existing Private Irrigation Wells in Area (Feet)

Well Address	DWR File Number	X	Y	Certainty of Location	Completed Depth	Depth to Lowest Screen	Depth to Top of Highest Screen	Completion Date	Drawdown in Shallow Aquifer with WEC Site Well	Drawdown in Upper Aquifer with WEC Site Well	Drawdown in Shallow Aquifer with South Washington Well	Drawdown in Upper Aquifer with South Washington Well
4018 Swanson Rd	437539	6457727.21	1994094.05	Approximate	180	180	nd	7/20/1996	1.38	1.44	1.13	1.19
15760 N Ave	29212	6457794.80	2004721.77	Approximate	236	234	162	12/5/1978	1.25	1.31	1.20	1.26
11119 Pedros Rd	146260	6457810.30	2010076.55	Approximate	160	160	110	6/3/1975	1.22	1.28	1.21	1.27
11913 W East Ave	287352	6463012.21	1994061.97	Approximate	460	460	250	5/5/1989	0.71	0.76	0.00	0.00
1129 9th St	66752	6463047.34	1999387.87	Approximate	nd	nd	nd	2/3/1971	1.09	1.15	0.95	1.00
700 Crane Rd	66741	6463047.34	1999387.87	Approximate	nd	nd	nd	5/4/1971	1.02	1.07	0.89	0.94
101 Wayside	46286	6463070.33	2004680.61	Approximate	425	425	110	12/21/1977	1.08	1.14	1.04	1.10
421 E Olive Ave	90457	64630967.6	2010034.41	Approximate	146	146	126	9/23/1974	0.82	0.87	0.81	0.86

nd indicates data not available from well driller's report

Table 5. Parameter Values Used in Drawdown Calculation

Parameter	Value
Horizontal hydraulic conductivity	100
Vertical hydraulic conductivity	0.055
Specific storage	0.0001
Specific yield	0.1
Aquifer thickness	152.5
Pumping well depth to top of screen	50
Pumping well depth to bottom of screen	162.5
Shallow-aquifer monitoring well depth to top of screen	10
Shallow-aquifer monitoring well depth to bottom of screen	11
Shallow-aquifer monitoring well distance	Variable
Upper-aquifer monitoring well depth to top of screen	106
Upper-aquifer monitoring well depth to bottom of screen	107
Upper-aquifer monitoring well distance	Variable

Table 6. Sensitivity of Drawdown to Aquifer-Parameter Values (Feet)

Parameter	Drawdown for Baseline			Drawdown with Reduced Parameter Value			Drawdown with Increased Parameter Value		
	Distance 0.25 Miles	Distance 2.0 Miles	Distance 0.25 Miles	Distance 2.0 Miles	Distance 0.25 Miles	Distance 2.0 Miles	Distance 0.25 Miles	Distance 2.0 Miles	Distance 0.25 Miles
Horizontal hydraulic conductivity	5.0	1.9	8.4	2.5	3.0	1.3			
Vertical hydraulic conductivity	5.0	1.9	5.2	2.0	4.9	1.9			
Specific storage	5.0	1.9	5.1	2.0	4.9	1.8			
Specific yield	5.0	1.9	5.7	2.5	4.4	1.4			